Training - Low-carbon fuels and processes

BIOCPP-EN-P | Face-to-face only | 3 days

This session provides general technical information on the characteristics and processes leading to key bio-based products and intermediates: existing and developing biofuels, petrochemicals and chemicals

Level

Expert

Public

Professionals from different technical departments in sectors ranging from refining to petrochemicals or involved in the energy transition

Objectives

Attendees will be able to implement the following skills:
Upon completion of the training, participants will be able to:

- • List the main characteristics of bio-based products on the current market
- • describe the principle of existing and developing processes

Pedagogical & technical resources

- • Interactive course: active participation of the trainees through games and quizzes to grasp the key points of the course.
- • Joint construction of a diagram of all bio-processes.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Meet at least one of the following criteria:
• Have 3 months of proven professional experience in the energy sector, in a technical position.
• Or have followed a training course oriented towards the introduction to refining or petrochemical processes.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CONTEXT AND FEEDSTOCKS — 0.5 day

Challenges of carbon-free energy and bioplastics in the context of climate change.
Associated environmental and regulatory framework.
Process development strategy.
Different types of biomass: sugar biomass, starchy biomass, oilseed biomass, waste.

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Biomass generations: 1G, 2G, 3G
Other feedstocks:

- CO2, low-carbon hydrogen.
- Recycled plastics.

BIOFUELS AND PETROCHEMICAL INTERMEDIATES 0.5 day

Description of hydrocarbon molecules families: Olefins, Aromatics, Paraffins.
Main characteristics and specificities of the different biofuels and comparison between them:

- For gasoline engine (ETBE, ethanol).
- For diesel Engine (FAME, HVO).
- For Jet (HEFA, FT-SPK, ATJ, DSHC).
- For the maritime sector (Methanol, NH3, GNL).

Other energetic fuels (H2 /e-fuels).
Main intermediates for access to plastics or chemicals: Olefins, Aromatics, Methanol, Syngas.
Main polymers: Bio-based vs. biodegradable, bioplastics, recycled plastics.

LOW CARBON PROCESSES 2 days

Overview of processes for transforming feeds into intermediate and finished products: feedstocks and treatments, process diagrams, different technologies when relevant, typical operating conditions, advantages and drawbacks, comparison and maturity.
Current processes:

- ethanol by fermentation.
- ETBE by etherification.
- FAME by transesterification.
- HVO-HEFA by hydrotreatment.
- Co-processing.

Advanced processes:

- Biogas by digestion
- Biomethane by digestion or methanation.
- Different routes to syngas.
- Methanol and Ammonia via Syngas.
- Fuels by Fischer-Tropsch via syngas.
- Olefins by dehydration of alcools (ethanol and methanol).
- Different routes for SAF by ATJ, DSHC.
- Bio-crude /Py-oil by pyrolysis of biomass, wastes or plastics.
- Bio-oil by hydrothermal liquefaction.
- E-fuels production.

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Training - Upstream Panel Operator

PANELOP-EN-P | **Face-to-face only** | **30 days**

This course provides the required skills to hold the position of panel operator with the appropriate attitude towards plant operation safety issues. Allow proactive and efficient adaptation to the position of control room operator, based on professional experience of participants

Level

Skilled

Public

Experienced production field operators called on to hold a panel operator position in Oil & Gas production facilities

Objectives

Attendees will be able to implement the following skills:

- Adopt the fundamental methodology and philosophy to operate Oil & Gas production facilities from the control room
- Be convinced of the absolute necessity of a proactive behavior and to implement an anticipatory operation
- Analyze and react methodically to anomalies, incidents and emergency situations in a safe manner
- Implement emergency procedures

Pedagogical & technical resources

- Very practical training course with numerous exercises and case studies on dynamic simulator derived from real life situations
- The training is entirely delivered on dynamic simulator replicating a DCS environment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives
- An evaluation using simulator is realised at the end of each module

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: PROCESS CONTROL, DCS & SIS — 5 days

Control room organization and panel operator role.

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Panel operator reporting and handover duties. Plant documentation in control room.
Radio-communication.
Process control:

- Control loop. Field instrumentation.
- Controllers operating principles & parameters. Control loops structures.
- Standalone simulator: simple loop controller tuning and impact of P&ID actions; study of various control loop structures; typical transmitters faults.

Distributed Control System (DCS):

- DCS architecture and system components. Human-Machine Interface (HMI).
- HMI functions: trends, alarms... Automated sequences and Safety Instrumented Systems (SIS): PSS, ESD, HIPPS, EDP.

Examples of simulator exercises performed: DCS views and functionalities browsing; reading safety logics; package sequence analysis.

MODULE 2: WELL & PRODUCTION LINE OPERATION 2.5 days

Reservoir conditions and production modes. Production principles and physics applied to well.
Surface wells and subsea wells: equipment, architectures, operating procedures.
Common well interventions. Production and injection wells monitoring. Common troubles.
Safety and prevention/protection barriers.
Examples of simulator exercises performed: well; production lines section parameters analysis; FPSO case.

MODULE 3: ROTATING MACHINERY OPERATION 2.5 days

Centrifugal pumps:

- Technology, auxiliaries, operating parameters, protection systems.
- Pumps and operating conditions applied on simulator.
- Examples of simulator exercises performed: effect of a pressure decrease or level decrease in the upstream vessel; plugged strainer; gas carry-under.

Reciprocating compressors:

- Technology, auxiliaries, process circuit, operating parameters, protection systems.

Centrifugal compressors:

- Technology, auxiliaries, process circuit, operating parameters, control and protection systems applied on simulator.
- Examples of simulator exercises performed: effect of temperature change; surge conditions; start-up and shutdown sequences.

MODULE 4: SURFACE PROCESSING OPERATION 5 days

Crude oil processing: stabilization, dehydration and desalting.
Gas processing: sweetening, dehydration, condensate recovery and fractionation.
Water processing: produced water treatment and introduction to injection water processing.
Examples of simulator exercises performed: influence of oil dehydration parameter; foaming symptoms; impact of TEG unit operating conditions; loss of a compressor; limited gas lift...

MODULE 5: SURFACE PROCESSING OPERATION/INTEGRATED PLANT OPERATION 5 days

Alarms: priorities management and decision making.
Panel operator reporting, shift handover and take-over duties: shift report and impact of a faulty report through role play situations.
Global plant performance checks: identification and implementation of a routine checks roadmap: identifying key parameters and trending them to anticipate deviations.
Radio communication and other communication means. Communication good practices.

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Oil transfer operations: storage and export, gas metering.
Analysis of an integrated plant behavior: inertia and interferences.
Analysis of production facilities shutdown philosophy: implementing safe plant shutdown procedure on simulator.

MODULE 6: INTEGRATED PLANT OPERATION/SAFETY IN OPERATION — 5 days

Analysis of production facilities start-up philosophy.
Implementing safe plant start-up procedure on simulator:

- Operating parameters analysis and anticipation of process upset.
- Generation of several malfunctions (by the instructor) to be fixed.

Learning to react and act to process upsets in a structured manner.
Identification, analysis and containment of process upsets according to the learnt methodology.
Examples of simulator exercises performed:

- Operating parameter analysis and anticipation of process upset.
- Managing slugs.
- Gas leakage to the flare.
- Production rate decrease.
- Partial loss of cooling water.
- Overpressure in storage tanks.
- Generation of several malfunctions (by the instructor) to be fixed.

MODULE 7: SAFETY IN OPERATION — 5 days

Routine operations: permit to work, safe isolation of plant equipment.
Downgraded situations. SIMOPS.
Learning to operate the plant in critical situation, to make adequate decision, to follow-up on actions performed:

- SIS: Process and emergency shutdown levels - Related Panel Operator role and duties.
- Emergency shutdown procedures.

Examples of simulator exercises performed: inhibition and downgraded situation mitigation (faulty pressure transmitter, SDV blocked open...); ESD activation due to process safety trip; manual ESD activation following leakage detection; emergency shutdown procedures implementation and follow-up (monitoring).

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Training - Applied chemical engineering for the refining and petrochemical industries

ACE-EN-P

Face-to-face only

52 days

This course provides a comprehensive understanding of the refining and petrochemistry chain involved and the equipment used in the refining and petrochemical industry

Level

Knowledge

Public

Engineers interested in applied chemical engineering relating to Oil & Gas products, refining processes and polymers

Objectives

Attendees will be able to implement the following skills:

- master the main thermodynamics concepts encountered in industrial processes dealing with fluids and know in which case and how they can be simulated
- provide a better understanding of the supervision and optimized operation of industrial distillation units
- understand the practical meaning of fluids physico-chemical behavior as well as chemical reactions
- master the fundamentals on refining processes (general process scheme, technologies involved, range of operations, constraints, optimization criteria, economics)
- understand the technology and operating conditions of thermal equipment
- understand the operating conditions of rotating machinery
- improve the understanding of control instruments and problems related to their use
- be aware of the main potential technical dangers associated with various industrial processes and with the use of products
- get acquainted with the various safety, environment and quality global management systems, and of the various systematic techniques used to implement and monitor their application

Pedagogical & technical resources

- E-learning modules
- Many applications and case studies based on industrial experience
- Applications using process dynamic simulators (RSI IndissPlus simulator)
- Applications using static simulation software (PRO II)
- A refinery visit is organized to visualize some units during the Oleum trip
- A visit of a supermarket is organized to show the relation between the intrinsic properties of the polymer and the final application in packaging

Assessment of achievements

In the case certification is selected by the participant, 4 written and 1 oral tests have to be taken all along the program

Prerequisites

A degree corresponding to 4 or 5 years of higher education, such as a French 'Diplôme d'ingénieur' (in 5 years),

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an American BSc (in 4 years), or another equivalent degree

Complementary informations

This course is administered alongside IFP School “Processes & Polymers Master” candidates. The course content corresponds to the first trimester of the Masters program

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SEPARATION PROCESSES — 18 days

Applied thermodynamics:

- Material and energy balances applied to continuous processes.
- Fluid properties, law of corresponding states, equations of state.
- Liquid-vapor equilibria, computation principles, thermodynamic models applicable to hydrocarbon mixtures and their application fields.
- Non-ideal mixtures, water-hydrocarbon mixtures.

Distillation:

- Overview on separation processes as an introduction on what will be seen in the refining, base chemicals and polymers processes.
- Parameters of industrial column operation: material balance, pressure, operation of liquid- vapor contact equipment, heat balance, reboiler and condenser operation, liquid-vapor flow rates, temperature and composition profiles.
- Distillation column process control: basic control, sensitive tray, variable and advanced control.
- Operation of multi-draw off columns, azeotropic and extractive distillation.

Distillation project:

- Introduction to the ProII/Provision simulation software with the help of an e learning module.
- Conception, design and cost estimation of a given industrial distillation column.

Instrumentation/Process control:

- Function and constitution of control loops and on/off control systems.
- Control loops: simple, cascade, split-range, calculated variables, feed forward.
- Main types of instruments, tags and symbols.
- Control valves: technology, safety position, intrinsic and real characteristics.
- Controllers: tuning, practice on dynamic simulator.
- Reaction run-away. Process control as an element of safety and quality.

FOUNDATIONS OF THE POLYMER INDUSTRY — 17.5 days

Industrial catalysts:

- Catalysis mechanism.
- Industrial catalysts properties.

Hydrocarbons physico-chemistry:

- Principal components of petroleum products.
- General hydrocarbon classification and main impurities.

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- Physical properties of hydrocarbon mixtures, correlations.

Crude Oils & Petroleum Products:

- Crude oils: analysis, average properties, yields in petroleum cuts, principal problems related to quality, classification.
- Petroleum products: classification, market, specifications, required quality for end use, new trends (biofuels, reformulated gasoline, ...).

Crude oil fractionation units:

- Crude oil desalting, atmospheric distillation, gas and gasoline separation. Vacuum distillation.

Refining Processes:

- Catalytic reforming and isomerization, hydrorefining processes, scrubbing treatments, catalytic cracking and alkylation, hydrocracking, thermal conversion processes, mineral lube base manufacturing processes.
- Economics of supply and refining operations.

Olefins and aromatics in petrochemicals:

- Overview of base chemicals and monomers manufacturing from chemistry to polymers.
- Sources, outlets and main industrial uses of olefinic and aromatic intermediates.
- Steam cracking and treatment of the cuts produced.
- View of the different schemes available, how to choose the correct one for design.

Synergy: an opportunity for the refining and petrochemical industries:

- Understand the synergy between Refining and Petrochemicals.
- Identify opportunities – existing units vs new designs.

For each process of monomers manufacturing:

- Basic chemistry.
- The main steps of the industrial process(es), description of the industrial plant(s).
- Technical evolution of the process(es).
- Product specifications.
- Main producers, trends of the market, economics.

On-Purpose Olefins:

- Overview of the main “on-purpose” technologies and related processes: FCC propylene, ethanol dehydration, propane dehydrogenation, ethylene + butene-2 metathesis, MTO-OCP, MTP.

Introduction to Polymer Chemistry and Characterization:

- Polymer structure - Conformation / Properties relationships.
- Characterization methods relevant to industrial polymerization: molecular weight distribution, melt index, intrinsic viscosity, Nuclear Magnetic Resonance, Gel Permeation Chromatography, light scattering.

FLUID TRANSPORT AND HEAT TRANSFER EQUIPMENT 10.5 days

Heat Transfer:

- Conduction and convection: parameters affecting heat exchange, resistance caused by the walls and by fouling, calculation methods.
- Radiation: emission, absorption, application to furnaces and boilers, tube skin temperature, influence of fuel burned, fouling effects.

Heat Exchangers:

- Functions, classification, TEMA standard nomenclature.
- Selection criteria for different types of shells and front and rear ends, principles of heat exchanger sizing.
- Variation in performance as a function of changes in operating conditions.

Furnaces boilers:

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- Different types of furnaces and functions, operating conditions, furnace efficiency and energy recovery.
- Combustion phenomena, distribution of supplied heat.
- Burners: fuel, air supply and mixture.
- Air and flue gas circulation: natural draft, forced draft.
- Simulations on furnaces operations.

Fluids dynamic:

- Liquid flow in a line, volume and mass flow, circuit characteristics.
- Pressure, pressure drops calculation in the lines and accessories.

Rotating machinery:

- Centrifugal and volumetric pumps: main types, technology, maintenance, specifications.
- Reciprocating and centrifugal compressors: main types, operating conditions, technology.

OPERATIONS, ENVIRONMENT, RISK MANAGEMENT & PROCESS SAFETY — 6 days

Safety intro & integrated management systems:

- Structure of an integrated management system.
- Commitment and responsibilities of plant management staff.
- Sharing the integrated management system responsibilities.
- Communication requirements.

Risk Management & Process Safety:

- Definition of risk.
- Introduction to process safety (hazard potential, scenarios).
- Historical major accidents.
- Inherent safe design principles.
- Hazard identification techniques.
- Layer of protection analysis.
- Safety critical measures.
- Plant site layout development.

Introduction to industrial polymer processes:

- Some historical milestones, importance of plastics in today's world, nomenclature.
- Main polymerization reactions and processes.
- Main industrial problems (impurities, heat removal, fouling, run-away, polymer recovery and finishing, change-over between grades, ...).
- Methodology for polymer process development.

Sessions

Rueil-Malmaison -	From 09/01/2026 to 11/27/2026	**19500 €/HT**
Rueil-Malmaison -	From 08/31/2027 to 11/26/2027	**19950 €/HT**

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Training - Upstream Contracts Audit

ACEP-EN-P | Face-to-face only | 5 days

This course provides participants a detailed understanding of principles and methods of upstream contracts audit

Level
Skilled

Public
Auditors and upstream professionals who will conduct joint-venture audits, or will be audited by partners in a joint venture, for State auditors in charge of auditing Oil & Gas contracts, for executives who look for a comprehensive understanding of issues linked to contractual audit

Objectives
Attendees will be able to implement the following skills:

- Prepare and lead a contractual audit
- Identify the risks related to accounting in Oil & Gas industry
- Set up an audit structure

Pedagogical & technical resources
Case studies and exercises based on recent industrial cases

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CONTRACTUAL ACCOUNTING — 1 day

Joint Operating Agreements and accounting appendix.
Upstream tax issues.
Production Sharing Contracts (PSC) and accounting procedures.
Joint costs and recoverable costs.
At cost principle and implementation.
Bases of operator's cost accounting.

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SPECIFICITIES OF JOINT VENTURE AUDIT — 1.5 days

Audit rights.
Organization of the audit: partners, operator.
Auditing respect of at cost principle.
Exercises.

SPECIFICITIES OF STATE AUDIT — 1.5 days

Audit rights.
Organization of the State audit, auditors qualification.
Articulation between joint-venture audit and State audit.
Key elements of contract and accounting procedure.
Case study.

CONDUCTING A CONTRACT AUDIT — 1 day

Audit preparation.
During the audit.
Conclusion of the audit.
Audit supervisor role.
Audit report and follow-up.

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Training - Gas Sweetening and Sulfur Recovery

ACIDE-EN-P | Face-to-face only | 5 days

This course provides a comprehensive technical review of sour gas treatment, sulfur recovery, conditioning processes and storage facilities, including operating and troubleshooting issues

Level

Knowledge

Public

Professionals interested in sour gas: engineers involved in Oil & Gas field facilities operation or design, managerial staff in gas processing facilities, equipment providers, personnel from engineering companies

Objectives

Attendees will be able to implement the following skills:

- Comprehend all concerns linked to sour gas treatment and sulfur recovery
- Review sulfur and acid pollutants main physical properties, specificities and induced hazards
- Understand operating principles and conditions of gas sweetening and sulfur recovery/handling processes
- Grasp main operating problems encountered in sour gas processing and sulfur recovery and handling

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations
- Parts of the session customizable to a virtual remote classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF GAS SWEETENING PROCESSES — 0.25 day

Nature, origins and compositions of the streams to be treated.
The properties of sulfur compounds and CO2.
Reasons for removing acid gases, usual specifications.
Cost impact of gas sweetening and stakes.

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Acid gas management, impact on the sweetening unit.
The different types of gas sweetening processes.

AMINE SWEETENING PROCESSES — 1.5 days

General principles.
Generic processes and proprietary processes.
Typical process flow scheme.
Amine unit design: key design parameters.
Specific process arrangements.
Equipment review, process control.
Operational issues and troubleshooting.
Specificities of amine units.
Elgin-Franklin, an example of a versatile MDEA sweetening unit.
An example of successive revamping of an amine unit.
Acid gas enrichment.

OTHER GAS SWEETENING PROCESSES — 0.75 day

Scavengers.
Solid bed processes.
Redox processes.
Other solvent processes: hot carbonate, physical solvents, hybrid solvents.
Permeation membranes.
Cryogenic distillation processes.
LPG sweetening.
Guidelines for process selection.

RECOVERING SULFUR FROM ACID GASES — 0.25 day

Architecture of the sulfur recovery facilities.
Sulfur properties.
The sulfur market (sulfur uses).

SULFUR RECOVERY UNITS (CLAUS) — 1.25 days

Chemical mechanisms and general process flow diagram.
Key parameters of the Claus process.
The thermal stage.
The catalytic stages.
Adapting the process to the acid gas quality (rich/lean acid gas).
Operational issues.

TAIL GAS TREATMENT — 0.75 day

Types of TGT processes.
Direct oxidation processes.
Sub-dew point processes.
Wet sub-dew point process.
H2S absorption processes.

SULFUR CONDITIONING & STORAGE — 0.25 day

Liquid sulfur degassing.
Sulfur forming.
Sulfur storage.

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Training - Matrix Acidizing

ACID-EN-P | Face-to-face only | 5 days

This course provides knowledge and skills needed to identify well damage issues in sandstone and carbonate reservoirs, and design acidizing programs

Level
Skilled

Public
Drilling or completion engineers, supervisors, lab or production professionals, non-specialists in wellbore treatment

Objectives
Attendees will be able to implement the following skills:

- identify the nature and the origins of well damage
- design an acidizing program
- select the additives needed
- identify the cadidates wells
- set up the acid treatment program..=

Pedagogical & technical resources

- Exercises - Teamwork
- Visit of a reservoir-wellbore interface laboratory (if available)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO RESERVOIR TREATMENTS — 0.5 day

Fundamental reminders on the Productivity Index (PI), the skin effect and flow efficiency, the different components of the skin.

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FORMATION DAMAGE — 1 day

Productivity issues: cause of low productivity, nature and origins of the damage, location of the problems and possible solutions.
Scale deposition: scale control and prevention.

MATRIX TREATMENT: ACIDIZING CARBONATES — 1 day

Aims; how it works.
Sandstones: inner characteristics, reactivity to injected fluids.
Laboratory studies.
Exercises.

MATRIX TREATMENT: ACIDIZING SANDSTONES — 1 day

Aims; how it works.
Sandstones: inner characteristics, reactivity to injected fluids.
Choosing the acids.

ACIDIZING ADDITIVES — 0.5 day

Review of the different additives (corrosion inhibitor, iron complexing agents, surfactants, solvents, etc.).
Selection of the additives.

MATRIX TREATMENT DESIGN — 0.75 day

Candidate selection.
Matrix design methodology.
Diversion.
Treatment evaluation.
Other associated processes (water shut-off...).
Causes of failure in matrix acidizing.
Case study.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Module 1: Thermodynamics Applied to Well Effluent Processing

ADV1-EN-P | Face-to-face only | 5 days

This course provides a thorough understanding of thermodynamics principles underlying operation and design of Oil & Gas processing facilities

Level
Skilled

Public
Engineers involved in operating or designing Oil & Gas field processing facilities

Objectives
Attendees will be able to implement the following skills:

- Describe Oil & Gas well effluents composition, properties and characteristics
- Grasp ideal gas law, real fluid behavior and characterization methods
- Explain liquid-vapor equilibrium of pure substances and mixtures
- Master the operating principles and performances of mixture separation processes
- Perform simulations with PRO/II™ and master the fundamentals of equations of state

Pedagogical & technical resources

- Highly interactive training with industry-specialist lecturers
- Numerous applications and illustrations
- Extensive practice of PRO/II™ process simulation software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL EFFLUENT — 0.75 day

Constitution and physical states of matter.
Constituents of well effluents: hydrocarbons, impurities, water, sediments...

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Different types of effluents: black oil, light oil, volatile oil, condensate gas, dry gas...
Characterization parameters: GOR, CGR, BSW, WOR, water cut, Bo, Bg, B'g...
Examples of compositions of crude oil and natural gas effluent.

LIQUID-VAPOR EQUILIBRIUM OF PURE SUBSTANCES — 1.25 days

Vapor pressure curves.
Overall phase diagram of a pure substance (three dimensions: P, T and V).
Enthalpy diagrams of pure substances.
Exercises: vapor pressure and boiling points of pure components; vapor pressure and boiling point; case of a column.
PRO/II™ simulation: propane cryogenic loop; operating parameters optimization; effect of ambient conditions.

LIQUID-VAPOR EQUILIBRIUM OF MIXTURES - MIXTURE SEPARATION PROCESSES — 2 days

Phase envelopes.
PRO/II™ simulation: phase envelope of well effluents, sales gas, stabilized crudes.
Well effluents behavior from pay zone to surface processing facilities.
PRO/II™ simulation: evolution of the effluent behavior in a well.
Techniques applied to mixture separation: flash process, distillation process.
Absorption and stripping phenomena.
PRO/II™ simulation: LPG recovery by physical absorption; mixture separation by distillation (LPG splitter).

IDEAL GAS & REAL FLUID BEHAVIOR — 0.5 day

Ideal gas behavior.
Behavior of real fluids: compressibility factor, Amagat's law, law of corresponding state with two and three parameters.
Equations Of State (EOS): conception, uses, examples, selection.

HEAT TRANSFER, HEAT BALANCE & THERMAL EQUIPMENT — 0.5 day

Fundamentals of heat transfer.
Heat balance.
Technology of heat exchangers and air coolers.
Examples of thermal equipment applications.

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Training - Module 2: Oil and Water Processing

ADV2-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of oil and water treatment processes, operation and troubleshooting

Level
Skilled

Public
Engineers involved in operating or designing oil and water field processing facilities

Objectives
Attendees will be able to implement the following skills:

- Master oil and water treatment processes, operations and related operating conditions
- Design main equipment used for oil processing
- Troubleshoot main operating problems encountered in oil and water processing and related solutions
- Simulate crude oil treatment processes using the PRO/II™ software

Pedagogical & technical resources

- Highly interactive training with industry-specialist lecturers
- Numerous applications and illustrations
- Extensive practice of PRO/II™ process simulation software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
To attend Module 1 (ADV1-EN-P) or to demonstrate a professional experience in process simulation

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NEED FOR OIL FIELD PROCESSING - QUALITY REQUIREMENTS — 0.25 day

Constituents raising problems for storage, transport, or crude oil sale.
Different specifications and quality requirements of crude oils.
Necessary treatments to reach these specifications.
Examples of compositions of commercialized crude oils.

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CRUDE OIL TREATMENT — 2.75 days

Crude stabilization by Multi Stage Separation (MSS):

- Process principle.
- Operating parameters: number of separation stages, pressures, heating and cooling needs... - Influence on the quantity and quality (API grade) of the produced oil.
- Foaming problems and main available solutions.
- Associated gas recompression - Typical associated gas compression schemes.
- Applications: practice of separator summary design methods.
- PRO/II™ simulation: study of the influence of separation stage number on the performances of a MSS process.

Crude dehydration and desalting:

- Emulsion problems.
- Main dehydration processes.
- Crude oil desalting.
- Applications: practice of desalter summary design methods.

Acid crude sweetening (H2S removal):

- Cold stripping: origin of stripping gas, need for sweetening of stripping gas.
- Hot stripping.
- Applications: practice of stripping column summary design methods.
- PRO/II™ simulation: simulation of a crude oil stripping units case study.

Case study: simulation of a whole crude oil field treatment plant; study of an offshore crude oil field treatment unit, based on a Multiple Stage Separation (MSS) process scheme; optimization of the operating parameters.

STORAGE EQUIPMENT — 0.5 day

Atmospherics tanks.
Case of floating storage vessels (FSO, FPSO).
Maintenance and operation.

PRODUCTION WATER TREATMENT — 0.5 day

Regulations for disposal.
Main treatments. Operating principle and required performances.
Comparison of the different available techniques. Selection criteria.
Examples of production water treatment block flow diagrams.

INJECTION WATER TREATMENT — 1 day

Reasons for water injection.
Quality requirements and necessary treatments.
Main operating conditions of each treatment and required performances.
Examples of injection water treatment block flow diagrams.

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Training - Module 3: Gas Processing and Conditioning

ADV3-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of gas treatment processes, operation and troubleshooting

Level
Skilled

Public
Engineers involved in operating or designing gas field processing and conditioning facilities

Objectives
Attendees will be able to implement the following skills:

- Assess various problems induced by unwanted elements in natural gas streams
- Master gas treatment and liquefaction processes, operations and related operating conditions
- Perform hand calculations for summary design of main gas processing equipment
- Ascertain main operating problems encountered in gas processing, conditioning and related solutions
- Simulate natural gas treatment processes using the PRO/II™ software

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations
- Extensive practice of PRO/II™ process simulation software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
To attend Module 1 (ADV1-EN-P) or to demonstrate a professional experience in process simulation

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NEED FOR FIELD PROCESSING OF GAS - QUALITY REQUIREMENTS — 0.25 day

Constituents raising problems for storage, transport or end use of natural gas.
Different specifications and quality requirements for natural gas.
Necessary treatments to conform these specifications.

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Examples of compositions of commercialized natural gases.

GAS DEHYDRATION (DRYING) & HYDRATE FORMATION INHIBITION — 1.25 days

System behavior. Moisture content of a saturated gas:

- Applications: moisture content of different gases of various compositions.
- Hydrate formation inhibition by injection of inhibitors: MeOH, MEG, DEG, LDHI...
- Gas dehydration processes: TEG units, molecular sieves...
- Application: summary design of TEG unit.
- PRO/II™ simulation: simulation of TEG unit.

GAS SWEETENING: REMOVAL OF ACID COMPONENTS (H2S AND/OR CO2) — 0.75 day

Overview of the techniques dedicated to gas sweetening:

- Chemical solvent processes. Amine units (MEA, DEA, DGA, MDEA...).
- Physical solvent processes.
- Hybrid (physico-chemical) solvent processes.
- Overview of other techniques.

Conversion of H2S: sulfur production (CLAUS process) and tail gas processing.
Application: summary design of an amine unit.

NATURAL GAS LIQUIDS (NGL) EXTRACTION (REMOVAL OF HEAVY COMPONENTS) — 0.75 day

External refrigeration loop.
Joule-Thomson expansion.
Turbo-expander.
Application: calculation of cryogenic loop used for extraction.
PRO/II™ simulation: simulation of NGL extraction unit - Process selection.

CASE STUDY: SIMULATION OF A WHOLE NATURAL GAS FIELD PROCESSING PLANT — 1 day

Study of a natural gas dehydration, NGL extraction and compression unit.
Optimization of the operating parameters.
Analysis of hydrate formation risks.

LIQUEFIED NATURAL GAS (LNG) — 1 day

Liquefaction processes: operating principle, typical operating conditions, technology of specific equipment (plate fin heat exchangers, spiral-wound heat exchanges, refrigeration loop compressors...), power consumption...
LNG storage and transport: storage tanks, LNG carriers, jetty, loading arms...
Safety considerations specific to natural gas liquefaction plants.
Industrial examples of natural gas liquefaction units.

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Training - Production Facilities Control Room Operation

ADVCCR-EN-P | **Face-to-face only** | **10 days**

This course aims to acquire best practices of production facilities control room operation through role-play situations on integrated Oil & Gas production plant dynamic simulator

Level
Skilled

Public
Experienced control room operators and production supervisors looking to advance their know-how in control room operation

Objectives
Attendees will be able to implement the following skills:

- Analyze and anticipate behavior of main control loop structures (DCS and SIS systems architecture and functionalities)
- Explain production equipment, process operating parameters and perform troubleshooting
- Implement proactive, anticipatory control room operation and acquire a safety mindset
- React and act in a structured manner to anomalies and plant upsets
- Enforce safety guidelines during downgraded and critical situations

Pedagogical & technical resources

- Extensive practice on integrated Oil & Gas production plant dynamic simulator
- Numerous case studies and role-play situations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GETTING STARTED - DCS FUNCTIONALITIES FOR PROPER ANALYSIS — 1 day

Familiarization with HMI functions and operation.
DCS tools review.

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PROCESS CONTROL & SAFETY INSTRUMENTED SYSTEMS — 1 day

Impact of P&ID parameters and simple closed loop tuning.
Study of control loop structures: cascade, split-range on simulator.
Programmable logic controllers: introduction to automated sequences.
Monitoring of start-up sequence (compressor) through MMI.
Safety Instrumented Systems (SIS): PSS, ESD, HIPPS and F&G systems description.

WELLS & PRODUCTION LINES OPERATION — 1 day

Well start-up (ramp-up) and shutdown.
Analysis of automatic well control.
Well monitoring and detection of abnormal conditions.

ROTATING MACHINERY OPERATION — 1.5 days

Centrifugal pumps.
Centrifugal compressors:

- Technology review, study of process and auxiliary lines, protection systems.
- Start-up and shutdown sequences.
- Analysis of operating conditions and operating parameters.

PROCESS UPSET MANAGEMENT — 2.5 days

Alarms: priorities management and decision making.
Becoming aware of the need for anticipation VS on-alarm action.
Managing and predicting process disturbances by using trend views. Use of trends to anticipate deviations.
Global plant performance checks: identification and implementation of a routine checks roadmap.
Shift report and impact of a faulty report through role play situations.
Process upsets: learning to react and act in a structured manner.
Identification, analysis and containment of process upsets according to the learnt methodology.
Example of simulator exercises performed:

- Loss of centrifugal compressor.
- Loss of cooling media.
- Production rate decrease.
- Unexpected slugging.
- ESD activation due to process safety trip.
- ...

SAFETY IN OPERATION — 1 day

Learning to operate the plant in critical situation, to make adequate decision, to follow-up on actions performed.
Example of simulator exercises performed:

- Gas leakage to the flare.
- Inhibition and downgraded situation mitigation (faulty pressure transmitter, SDV blocked open...).
- Manual ESD activation following leakage detection.

PRODUCTION START-UP — 1 day

Analysis of production facilities start-up philosophy.
Safe plant start-up.
Implementing start-up procedure on simulator:

- Operating parameters analysis and anticipation of process upset.

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- Generation of several malfunctions (by the instructor) to be fixed.

CONTINUOUS ASSESSMENT TEST 1 day

Weekly tests on simulator.

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Training - Advanced Oil and Gas Field Processing

ADV-EN-P | Face-to-face only | 15 days

This course aims to deepen understanding of Oil & Gas field processing techniques

Level
Skilled

Public
Engineers involved in operating or designing Oil & Gas field processing facilities

Objectives
Attendees will be able to implement the following skills:

- Understand main thermodynamic transformations involved in Oil & Gas processing
- Grasp a comprehensive picture of Oil & Gas processing facilities
- Simulate main Oil & Gas facilities
- Master operating variables and conditions of processing facilities

Pedagogical & technical resources

- Highly interactive training with industry-specialist lecturers
- Numerous applications and illustrations
- Extensive practice of PRO/II™ process simulation software: a case study will be developed all along these 3 weeks (simulation of a crude oil and associated gas treatment process)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: THERMODYNAMICS APPLIED TO WELL EFFLUENT PROCESSING — 5 days

Well effluent.
Ideal and real fluid behavior.
Liquid-vapor equilibrium of pure substances:

- Vapor pressure curves.

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- Enthalpy diagrams.
- PRO/II™ simulation exercises.

Liquid-vapor equilibrium of mixtures - Mixture separation processes:

- Phase envelopes.
- Flash, distillation, absorption, stripping.
- PRO/II™ simulation exercises.

Heat transfer, heat balance and thermal equipment.

MODULE 2: OIL & WATER TREATMENT — 5 days

Need for field processing of oil - Quality requirements.
Crude oil treatment:

- Crude stabilization.
- Crude dehydration.
- Acid crude sweetening.
- Crude oil treatment process simulation using PRO/II™.

Storage tanks: technology, operations and maintenance.
Production water treatment:

- Regulation for disposal.
- Main treatments.

Injection water treatment:

- Quality requirements.
- Main treatments.

MODULE 3: GAS PROCESSING & CONDITIONING — 5 days

Need for field processing of gas - Quality requirements.
Gas processing:

- Gas dehydration.
- Gas sweetening.
- NGL extraction.
- Simulation of a gas processing chain using PRO/II™.

Liquefied Natural Gas (LNG).

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Training - Financial Management in the Energy Business

AGFE-EN-P | Face-to-face only | 3 days

The energy sector is changing. The energy transition is increasing the pressure on traditional Oil & Gas activities' profitability. Renewable energy value levers are changing rapidly. In this context it is important for managers of these activities to understand the stakes of the firm's financial management and its key tools in order to better contribute to the performance of their organization

Level

Knowledge

Public

Technical, business development executives, economists and young high-potential executives of Oil & Gas and renewable energy companies, as well as public administration decision makers and staff (industry, finance, energy, environment)

Objectives

Attendees will be able to implement the following skills:

- Interpret the main financial indicators of their organization to better contribute to value creation,
- Evaluate the expected profitability of investment projects,
- Understand the criteria for selecting a company's financial structure

Pedagogical & technical resources

- Exercises.
- Case studies: financial analysis of a company, evaluation of an investment project (offshore Wind farm)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DEFINITIONS — 0.6 day

Financial management objectives. Key performance indicators in the energy sector.
Understanding financial statements. Fundamental accounting principles. Difference between income statement and cash flow.

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VALUE MANAGEMENT — 1.7 days

Analyzing and managing the financial performance of operations. Energy companies management targets/objectives: "Total Shareholder Return", ROCE, ROE). Cost of capital. Financial analysis ratios. Dashboards. Assessing the profitability of an investment project: discounting methodology and economic indicators (NPV, IRR, Payback time...), sensitivities.

OPTIMIZING THE FINANCIAL STRUCTURE OF THE FIRM — 0.7 day

Choosing the financial structure of the firm. Gearing.
Solvability, borrowing capacity.
Examples of typical energy financing methods: project financing, green bonds.

Sessions

Rueil-Malmaison - From 10/13/2026 to 10/15/2026 **2970 €/HT**

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Training - Artificial intelligence in drilling and completion operations

AIDC-EN-P

Face-to-face only

5 days

This course presents comprehensive training in Machine Learning (ML), Data Science (DS) and Artificial Intelligence (AI) applications in drilling operations for engineers in the oil & gas industry. The course focuses on integrating these advanced technologies into the day-to-day work of simulation, well monitoring and drilling optimization. It aims to equip professionals with the knowledge and tools to improve efficiency, reduce risk and enhance real-time decision-making in drilling practices

Level

Awareness

Public

- Petroleum industry engineers with experience in well monitoring, simulation and drilling & Completion operations.
- Professionals seeking to understand the value of machine learning and data science to solve industry-specific problems and optimize operations.

Objectives

Attendees will be able to implement the following skills:

- Understand the fundamentals of machine learning and its relevance to drilling & completion,
- Learn how to apply data science techniques to well monitoring and real-time decision making,
- Learn how to use software tools and platforms for building ML models,
- Discover how AI-driven models can improve operational efficiency, reduce downtime and enhance predictive maintenance,
- Integrate data from sensors and simulation tools to build predictive drilling performance models.

Pedagogical & technical resources

- Highly interactive course delivered by experts of the E&P industry.
- Numerous examples and feedbacks from the industry. Numerous videos and animations.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

INTRODUCTION TO MACHINE LEARNING (ML) AND DATA SCIENCE IN PETROLEUM ENGINEERING — 1.5 days

Overview of ML/AI concepts (supervised, unsupervised learning, deep learning). Data Science workflow and how it integrates with petroleum engineering practices. Examples of applications of ML/AI in drilling, reservoir modeling, and production forecasting.

DATA COLLECTION AND INTEGRATION IN DRILLING OPERATIONS — 0.25 day

Handling and integrating data from sensors, logging tools, and simulation outputs. Real-time data acquisition and preprocessing for drilling optimization. Understanding the role of Big Data and its potential to transform drilling.

TOOLS AND PLATFORMS FOR ML IN DRILLING — 0.25 day

Overview of software tools and platforms like TensorFlow, Keras, PyTorch, and Scikit-learn for building ML models.

PREDICTIVE ANALYTICS IN DRILLING OPERATIONS — 0.5 day

Using machine learning models to:

- predict drilling parameters such as rate of penetration (ROP), formation pressure,..
- improve predictive maintenance for drilling equipment using sensor data and AI models to reduce unplanned downtime.
- enhance anomaly detection in drilling operations for early identification of risks (e.g., stuck pipe, lost circulation).

DRILLING OPTIMIZATION USING MACHINE LEARNING — 0.5 day

Learn how to define and use:

- Supervised learning models to optimize drill bit selection, mud weight, and drilling speed.
- Reinforcement learning for dynamic adjustments in drilling based on environmental and operational data.
- Real-time decision support systems powered by machine learning to improve wellbore stability and minimize drilling hazards.

SIMULATION-DRIVEN ML MODELS FOR DRILLING — 1 day

Integration of simulation results with machine learning to build better predictive models.
Creating virtual models of the wellbore or drilling environment.
Case studies on using ML models to analyze and enhance drilling simulation results.

AUTOMATING WELL MONITORING AND RISK ASSESSMENT — 0.5 day

Automating well monitoring with:

- AI models that continuously assess well health and recommend corrective actions.
- AI-enhanced risk assessment tools that predict potential blowouts or formation damage.
- Case studies on how machine learning reduces risks and improve outcomes in drilling projects.

AI IN DRILLING AUTOMATION AND CONTROL — 0.5 day

Future trends in automated drilling systems and robotics in well construction.
The role of AI in autonomous drilling: reducing human intervention and increasing efficiency.
Smart rigs and how machine learning could enable the automation of routine tasks.

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Sessions

Pau - From 11/16/2026 to 11/20/2026	**4570 €/HT**
Pau - From 06/14/2027 to 06/18/2027	**4680 €/HT**
Pau - From 11/15/2027 to 11/19/2027	**4680 €/HT**

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Training - Introduction to petroleum geology: Alès basin fieldtrip

ALES-EN-P

Face-to-face only

4 days

4 days over 5 calendar days

This course allows to acquire a basic knowledge in geology, especially geology applied to petroleum sciences, using field observation and analysis alternating with theoretical knowledge via daily classes

Level

Knowledge

Public

Non-geologists or geologist trainers/juniors who want to acquire basic knowledge in petroleum sciences

Objectives

Attendees will be able to implement the following skills:

- Identify main characteristics of a petroleum system
- Analyze and describe workflow and tools used by geoscientists (geological maps, sections, seismic profiles, logs)

Pedagogical & technical resources

- Daily theoretical courses and field observations
- Description and study of worldwide petroleum systems through field analogues
- Correlation between field observations and geotools (seismic and logs)

Assessment of achievements

Knowledge assessment with multiple choice questions and open explanatory questions

Prerequisites

No pre-requisites are necessary to follow this course

Complementary informations

Subscription fees include accommodation and daily field transportation fees. Participants remain responsible for their own travel to/from fieldtrip location (Gard, France; to be confirmed)

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIN HISTORY — 0.5 day

Sedimentology and stratigraphy concepts.
Structural network – Folds – Faults.
Rock identification.

CARBONIFEROUS COAL SYSTEM AND TRIASSIC UNCONFORMITY — 1 day

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Fluvial deposits.
Sequence stratigraphy – A/S concept.
Continental source rock.
Reservoir analogues.

JURASSIC AND CRETACEOUS CARBONATE PLATFORMS — 1 day

Analogy with carbonate platforms of the Middle East.
Marine source rock.
Porous and fractured reservoirs.
Outcrops and quarries.

PETROLEUM SYSTEM OF THE ALES BASIN — 1 day

Eocene lacustrine source rock.
Hydrocarbon maturation and migration processes.
Reservoir rock – Types of porosity.
Prospect definition – From prospect to reservoir.

CONCLUSION, PERSPECTIVES AND PREDICTIONS — 0.5 day

Miocene deposits.
Onshore/Offshore transition (Gulf of Lion).
Seismic interpretations.
Main tools of the petroleum geoscientist.

Sessions

Alès - From 10/05/2026 to 10/09/2026 — **3800 €/HT**

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Training - Process Energy Efficiency Improvement for Industrial Plants

AMENER-EN-P | Face-to-face only | 3 days

This course provides comprehensive and applied knowledge of pinch analysis and covers how to improve energy efficiency in existing plants or new projects

Level

Expert

Public

Engineers from process, engineering, R&D departments of industrial plants in various industries (oil, gas, petrochemical, chemical, energy, paper, food, etc.)

Objectives

Attendees will be able to implement the following skills:

- Identify the challenges of energy efficiency
- List the energy efficiency improvement methods

Pedagogical & technical resources

- Practical course and case studies based on industrial data and adjustable to trainee's concern
- Use of an expert software to compare to the initial evaluation

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ENERGY EFFICIENCY & CONTEXT — 0.5 day

Definition of Key Performance Indicators: energy intensity and efficiency, units and use.
Motivations and constraints: energy dependence and regulation.
Energy management system: PDCA (Plan, Do, Check, Act), ISO 50001 standard.
Different approaches for energy efficiency: operation improvement, operating conditions optimization and other significant improvement solutions (pinch analysis, alternative technology, process design, best available techniques).

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PINCH ANALYSIS & MAIN RULES — 0.5 day

Composite curves (hot and cold streams): building, description and interest.
Pinch point: characteristics and help for solutions design. Key parameters: ΔTmin, integration ratio.
Main rules: “cross pinch”, “plus or minus principle”...
Illustration through examples (heat exchanger network, selection of a compressor).
Advantage of an expert software dedicated to energy analyses.

METHODOLOGY FOR ENERGY ANALYSIS: MAIN STEPS & CASE STUDIES — 2 days

Several case studies proposed and based on a methodology for energy analysis, adapted for industrial plants or new projects.
At this step, trainees will be able to:

- Characterize the energy needs and potential of a process.
- Design the most consuming pieces of equipment.
- Define savings targets.
- Propose potential solutions and options.
- Simplify it in order to select most profitable and operational options.

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Training - Artificial Lift: Pumping

APOMP-EN-P | Face-to-face only | 5 days

This course provides a comprehensive, practical knowledge of rod and centrifugal pumping concepts, design, operations and potential problems

Level
Skilled

Public
E&P professionals involved in operating wells using sucker rod or centrifugal pumping

Objectives
Attendees will be able to implement the following skills:

- identify need for artificial lift
- select the most-suited pumping method
- design SRP & ESP pumps
- analyze operating conditions
- improve well performance and manage equipment lifetime

Pedagogical & technical resources

- Exercises on equipment calculation
- Numerous animations and videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WHY ARTIFICIAL LIFT? — 0.5 day

Main parameters relative to reservoir and well performance curve: inflow and outflow.
Need for artificial lift.

SUCKER ROD PUMPING — 1.5 days

Principle, field of application, crucial parameters.

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Main specific equipment: surface Pumping Units (PU), downhole pumps, rodstring.
Operating procedures and troubleshooting.
Example of rodstring load calculation.

ELECTRICAL SUBMERSIBLE CENTRIFUGAL PUMPING (ESP) 2.25 days

Principle, field of application.
Main specific pieces of equipment: pump, seal section/protector, electric motor selection, Variable Speed Drive (VSD) interaction.
Operating procedures and troubleshooting (including PROSPER™ methodology).
Example of design:

- Base case: oil “without problems”.
- Specific cases: gassy oil well, ESP with VSD.

OTHER METHODS & PROCESS SELECTION 0.5 day

Overview of other methods (hydraulic pumps, jet pumps, Progressive Cavity Pumps [PCP]): principle, fields of operation.
Artificial lift methods comparison, benefits and limitations.

KNOWLEDGE ASSESSMENT 0.25 day

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Training - Well Architecture and Equipment

ARCHI-EN-P | Face-to-face only | 5 days

This course provides a thorough and practical understanding of the methodology for designing a casing program

Level

Knowledge

Public

Professionals involved in drilling operations and interested in well architecture for Oil & Gas, geothermal and storage wells (i.e. drilling & completion engineers, mud engineers, supervisors, drilling contractor personnel)

Objectives

Attendees will be able to implement the following skills:

- Calculate different casing strings using the Drilling Data Handbook
- Select the right position of casing shoes
- Calculate the stress applied to the casing pipes
- Select the casings as per the constraints encountered while drilling
- Choose the right wellhead with regard to the casings used

Pedagogical & technical resources

- Exercises
- Application to a real case (project) for participants in the "Drilling & Completion Engineering" training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRILLING & CASING PROGRAM — 0.5 day

Role of casings.
Parameters to be considered to determine well architecture:

- Well type.

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- Pore and frac pressures.
- Completion, lithology.

Different types of casings:

- Surface.
- Intermediate.
- Production.

WELLHEAD — 0.25 day

Different elements.
Wellhead assembly sequences.

CHARACTERISTICS OF CASINGS — 0.25 day

Geometric, physical and mechanical properties of the pipes, the connections.
Use of Drilling Data Handbook.

SHOE POSITIONING — 0.25 day

Hypotheses to be considered, casing point - Kick tolerance.
Casing point - Kick tolerance.
Examples and exercises.

CASING STRING CALCULATION — 0.25 day

Principles and assumptions to remember for the different strings.
Stress cases study:

- Collapse.
- Burst.
- Tension.
- Triaxial study.
- Safety factors.

Casing selection: examples and exercises.

CALCULATION EXAMPLES — 2.5 days

Case studies and writing of a spreadsheet in order to determine the casing point, the kick margin, the pressure max...

TECHNOLOGIES IN USE FOR ENERGETIC TRANSITION — 0.5 day

Geothermal wells and their thermal cyclic, casing strength at high temperature, corrosion resistance.
Underground storage well architecture guidelines for liquid, gaseous hydrocarbons, compressed air, hydrogen as well as for aquifer and depleted reservoir storage facilities.
Expandable casing to reduce the amount of energy needed to drill the bore.

KNOWLEDGE ASSESSMENT — 0.5 day

Sessions

Pau - From 03/01/2027 to 03/05/2027 — **4420 €/HT**

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Training - Air Separation Unit

ASU-EN-P | Face-to-face only | 3 days

This course reminds the basic background and knowledge of Air Separation Unit technology and operation

Level

Skilled

Public

Operators, supervisors and plant managers involved in operation and optimization, technicians support, process engineers, process control engineers and safety personnel

Objectives

Attendees will be able to implement the following skills:

- Describe the main equipment associated with the Air Separation Unit and their function
- Explain the operating parameters and the product management for safe operation
- Detect abnormal situations by troubleshooting and implement preventive measures

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRINCIPLES OF AIR SEPARATION UNIT — 0.5 day

Overview on the air separation technology along the relevant process units:

- Introduction to air separation technology.
- Basics of the separation process.

PROCESS UNIT DETAILS, DESCRIPTION, TECHNOLOGY & OPERATING PARAMETERS — 1.5 days

Air filtration system.
Air compression.
Pre-cooling system.
Front end purification.
Brazed alumina heat exchanger.

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Distillation columns.
Vapor/condenser.
Cryogenic pumps/expander.
Storage and backup vaporization.

THE SPECIFIC RISK OF OXYGEN/NITROGEN — 0.5 day

Introduces to oxygen risk, reactivity of material with oxygen, design of O2 installation.
Review of incidents in air separation units, causes and preventive measures.
Safe operation and maintenance of equipment.
Anoxia, deficient atmosphere.

BASIC CONTROL PRINCIPLE — 0.5 day

Main control loops.
Safety loops, elements important for safety.
Transition phase: start-up, load change, shutdown.

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Training - Field Safety Audit

AUDSECU-EN-P | **Face-to-face only** | **2 days**

This course provides techniques to employees in order to improve human behavior during field safety assessments of various activities on site

Level

Knowledge

Public

Site's employees and contractors (SHE, operation, maintenance, projects, laboratory...)

Objectives

Attendees will be able to implement the following skills:

- Explain the role of the audit in the site's security approach
- Specify the elements of design, conduct and effective management of a field audit

Pedagogical & technical resources

- Teamwork with case studies, incident analysis, simulations and role-playing
- Real site audits (according to site's opportunities) and reports writing
- Site audits debrief: analyzes/exchanges on the different situations met

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FIELD SAFETY AUDIT AS A MAJOR TOOL FROM SAFETY MANAGEMENT — 0.5 day

Management commitment regarding safety:

- Apply and enforce site's Safety policy.
- Be exemplary in your behavior.
- Be vigilant and reactive to the situations encountered, avoid routine, and develop proactivity.

Safety results and performance improvements:

- Risk pyramid: accident, near miss, hazardous situation & hazardous acts, occupational illness.

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- Main focuses for field audit.

Objectives and benefits of audits:

- Assess site's staff involvement regarding Safety.
- Correct hazardous situations & acts (immediate and / or planed actions).
- Continually look for improvements.
- Develop critical thinking, avoid routine phenomenon

FIELD SAFETY AUDIT PROCESS 0.75 day

Different steps:

- Preparation for the visit.
- Field visit: observation, information gathering, verbal communication, finding solutions.
- Post-visit: information processing, writing of the report, communication of the results, action plan, follow-up of the action plan, feedback to the people observed.

Communication techniques before, during and after the audit:

- Contact with people observed.
- Active listening.
- Dialogue.
- Communication of the results: validation, assessment of safety level.

Observation techniques:

- Observation cycle: decide, stop, observe, act, report, and follow.
- Observing man at work.
- Observing work environment: equipment integrity, protections, safety rules, procedures, order and cleanliness, work permit.
- Examples of guide sheets.

PRACTICAL EXERCISES WITH FIELD SAFETY AUDITS BY TRAINEES 0.75 day

Targeting of the audit: location, activity, persons...
Performing field safety audit with associated behavior and communication.
Report writing with facts observed, immediate actions and proposals for improvement.
Audit report presentation to the group and discussion.
Use of specific audit procedure and guidelines from the site.

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Training - Fuel Manufacturing - In Line Blending Optimization

AUTOOFF-EN-P | **Face-to-face only** | **3 days**

This course provides a thorough understanding of the product manufacturing principles: in line blending monitored by a global optimizer

Level

Skilled

Public

Engineers, managers, technical and operating staff interested or involved in product manufacturing

Objectives

Attendees will be able to implement the following skills:

- List the standard tests relating to the specifications of gasoline, diesel and fuel oil mixtures, specifying the impact of each of the bases on each property
- Explain the working principle of the application of mixtures taking into account the associated laws and their limits
- List the sources of possible malfunctions of the application and, after analysis, the necessary corrective measures

Pedagogical & technical resources

Training content is fully adapted to the refinery blending optimization tool, which is done under confidentiality agreement

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer, including blended simulations
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GASOLINES, DIESEL FUELS, HEAVY FUELS SPECIFICATIONS — 0.5 day

Normalized tests used to check specifications.
Specifications: main constraints for the optimizer.
Optimization of the blend: notion of give-away and identification of the key constraints.

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BASES & ADDITIVES — 0.25 day

Nature, origin and characteristics of the bases.
Additives: best practices for additivation - Properties optimized by additives.

BLENDING LAWS USED BY THE OPTIMIZER — 0.75 day

Density, octane numbers, cetane numbers, vapor pressure, distillation, cloud point, flash point, viscosities, sulfur.
Analyzers: principle; sampling loop; Tank Quality Integration (TQI).
Particular case of properties optimized by additives (case of CFPP for Diesel fuel).

BLEND OPTIMIZATION: SP95 & ADO MANUFACTURING — 0.75 day

Check of base properties - The optimizer requires all the base properties.
Ratio constraints due to inventory constraints.
Quality constraints (specifications).
Economic optimum.
Follow up of the blending with the main process view of the application.

BLEND MONITORING — 0.5 day

Different steps in the calculation of the optimizer - Dynamic optimization of the application.
Algorithm principle: integration cycles, optimization cycles, dynamic regulation.
Blend manufacturing: how to treat infeasibilities.

UPSETS - STUDY CASES — 0.25 day

Often result from wrong inputs. Identification of the origin of the problem and corrective measures.
Switch of the optimizer in “model mode” in case of analyzer failures during the blend.

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Training - Fundamentals of Drilling and Completion

BACFP-EN-P | Face-to-face only | 5 days

This course covers an overview of fundamental knowledge in drilling and completion, and the various pressure in the well. It also provides the fundamentals knowledge in order to follow the intensive training program “Drilling & Completion Engineering”

Level

Knowledge

Public

Young engineers involved in drilling and completion, supervisors and tool pushers

Objectives

Attendees will be able to implement the following skills:

- Describe the basic notions about hydrostatic and hydrodynamic
- Carry out well pressures calculations
- Explain the fundamentals of drilling techniques
- Assess uncertainties with regard to pressure measured while drilling
- Explain the reaction of gaseous with regard of gaseous influx encountered while drilling

Pedagogical & technical resources

- Exercises, case study
- Interactive animations and videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INITIAL TEST — 0.5 day

General knowledge about drilling and completion.

CAUSES OVERBURDEN PRESSURE, PORE PRESSURE, FRAC PRESSURE — 1 day

Definitions.

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Causes of abnormal pore pressure.
Detection of abnormal pore pressure.
Determination of frac pressure, LOT.

DRILLING FUNDAMENTALS — 1 day

Principle of drilling, functions of the drilling fluid, well architecture.
Casing cementing.
Wellhead and safety.

HYDRODYNAMICS APPLIED TO WELL — 2 days

Hydrostatic pressure, pressure losses.
Relation between static and circulating well pressures.

KNOWLEDGE ASSESSMENT — 0.5 day

Sessions

Pau - From 01/25/2027 to 01/29/2027 — **4420 €/HT**

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Training - Basin Assessment and Modeling

BAM-EN-P | Face-to-face only | 65 days

This course provides a comprehensive, practical knowledge and know-how of basin exploration, analysis & modeling workflow, via hands-on activities, case studies for play assessment and prospect definition

Level

Skilled

Public

Geologists, geophysicists and reservoir engineers, with 1 to 3 years of experience involved in basin analysis and prospect generation

Objectives

Attendees will be able to implement the following skills:

- Have a clear comprehension of analysis methods and techniques applied to basin exploration
- Interpret and integrate a dataset to build a coherent model for prospect definition
- Contribute to the reduction of uncertainty and risks, and optimize investments

Pedagogical & technical resources

- Hands-on activities and simulations on real cases
- Emphasis on practical work to develop participants' autonomy and appropriate decisions
- Both personal and group work, team-building, group discussion in results and workflows
- Software tools used in the petroleum industry
- Software used during workshops: with courtesy of Beicip-Franlab and Schlumberger

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including final project at the end to simulate operational situation to be presented to a jury

Prerequisites

Knowledge in geosciences

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INFORMATION

Lectures, hands-on activities and case studies are distributed all along the program.

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Training content presents a clear operational orientation in order for participants to get familiar with specific techniques via an extensive exposure to simulations on real cases allowing them to anticipate the problems they will have to cope with later in their own projects.

PART 1: EXPLORATION BLOCK MANAGEMENT — 15 days

Introduction to Basin Exploration
Play assessment: From basin analysis to exploration opportunities.
Prospect generation and evaluation: from single to multi-prospect portfolio.

PART 2: EXPLORATION TECHNIQUES & BASIN MODELING — 20 days

Structural geology: impact on petroleum system development and maturity.
Well logging, qualitative and quantitative log interpretation.
3D seismic interpretation workshop (structural & stratigraphic).

PART 3: SEQUENCE STRATIGRAPHY & BASIN MODELING — 15 days

Sedimentology and sequence stratigraphy workshop.
Stratigraphic modeling (basin architecture and sediment distribution).
Basin modeling (thermicity, maturation and migration).

PART 4: FINAL PROJECT WORKSHOP — 15 days

Exploration for prospect generation workshop.

PROJECT REPORT DEFENSE & JURY

The training program ends with a project on a real case. Participants are involved in a simulated situation and their mission is to summarize, integrate and apply acquired knowledge. Each team will present final results of a project to a jury.

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Training - Production Accounting and Material Balance

BILMAT-EN-P | Face-to-face only | 3 days

This course provides the fundamental knowledge for understanding production balance, linking relevant operations and production figures which impact issues such as transfer fee, exchange between fields, field use...

Level

Knowledge

Public

Managers, engineers, technical or non-technical staff involved in production reporting or material balance handling (assessing fee, value created, etc.)

Objectives

Attendees will be able to implement the following skills:

- Establish production balance from basic data (well tests, process measurements, fiscal data)
- Explain performance monitoring mechanisms and production reporting tools
- Describe accounting and back allocation rules specific to process or production mode

Pedagogical & technical resources

- Highly interactive and applied course by industry specialist lecturers
- Numerous illustrations and cases studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

THE PRODUCTION CHAIN FROM THE RESERVOIR TO THE EXPORT POINT — 0.5 day

Field operations mapping.
Nature and characteristics of fluids accounted for.
Field processing of well effluent: surface facilities.
BFD studies.

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MEASURES & METERING SYSTEMS ALONG THE CHAIN — 0.5 day

Well measurements and production tests.
Metering systems and their location in the plant:

- Technology, accuracy, calibration.
- “Filter” concept of a metering system.
- Process metering.
- Transactional metering.

Tank gauging.

LIQUID & GAS BALANCES — 1.25 days

Production accounting rules.
PFD studies of Oil & Gas treatment units.
Liquid balances: oil balance, condensate balance, LPG balance, water balance.
Gas balances: dry gas and wet gas field cases.
Case studies:

- Study of oil and condensate balances.
- Reconstruction of a natural gas and associated gas balance (Oil & Gas cap ring).

PERFORMANCE MONITORING & PRODUCTION REPORTING — 0.25 day

CASE STUDY & PRODUCTION BALANCES RECONSTRUCTION: BACK ALLOCATION, SATELLITE FIELDS, MAIN PRODUCTION CENTERS — 0.5 day

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Training - Boilers Safe Operation and Optimization

BOILER-EN-P | **Face-to-face only** | **4 days**

This course provides in-depth knowledge of boilers operating conditions and constraints for a safe and reliable operation

Level

Skilled

Public

- Operators, panel operators, supervisors and plant managers involved in steam production facilities operation and optimization
- Maintenance, instrumentation technicians and supervisors working on boilers

Objectives

Attendees will be able to implement the following skills:

- Describe the main types of industrial boilers and their components, including their operating conditions
- Explain how the main control loops work
- List the main phases of a safe boot procedure

Pedagogical & technical resources

- Use of case studies or exercises based on actual cases from the industry
- Special emphasis on safety issues and abnormal situations that can lead to accidents

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BOILER DESCRIPTION & OPERATING CONDITIONS — 0.75 day

Different types of boilers and their characteristics. Operating conditions. Fuel consumption. Distribution of the heat supply as a function of the steam pressure and temperature. Construction of the vaporization and superheating tube bundles, the economizer and the drum.
Application: calculation of heat distribution between water wall, superheaters, economizer and air preheater.

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COMBUSTION - BURNERS 1.5 days

Combustion conditions: fuel characteristics.
Conventional and low NOx burner technology and operation.
Combustion quality: analysis of oxygen and unburned material in the flue gases.
Safe combustion: flame detection, control and safety devices on the fuel circuits.
Air and flue gas circulation. Flue gas pressure profile in the boiler, draft control.
Application: flue gas composition calculation, air and flue gas pressure profile drawing.

STEAM PRODUCTION 0.75 day

Water preparation: drawbacks arising from the impurities in the water, water quality measurement, characteristics of feed water and water in the boiler, thermal degassing, water chemical conditioning.
Control loop systems: steam pressure, feed water flow rate, superheated steam temperature, disruptions and control principles.

BOILER OPERATION 1 day

Steam generation inside tube coil and steam superheating.
Heat flux, parameters influencing heat transfer, impact of fuel type, fouling impact.
On-stream boiler operations: routine monitoring, operating condition changes, analysis of disturbances, soot blowers, drains, etc.
Start-up and shutdown: preparation, ignition procedures, pressure build-up, connection to network, normal or emergency shutdown.
Application: study of start-up and shutdown procedure. Accident case studies.

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Training - Rig, BOP's and Well Control Equipment

BOP-EN-P | Face-to-face only | 5 days

This course provides a thorough, practical knowledge of rigs, BOP's and well control equipment

Level

Knowledge

Public

Technicians, engineers, manufacturers of control equipment, needing a technical introduction in the field of drilling/wells

Objectives

Attendees will be able to implement the following skills:

- Acquire a good knowledge of drilling rigs and BOPs
- Learn about the use and limits of different pieces of equipment
- Select capacities and types of rig equipment
- Select BOPs, hydraulic units and auxiliary equipment

Pedagogical & technical resources

- Exercises
- Application to a real case (project) for participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

RIG — 15 hours

Description of the main functions:

- Safety
- Hoisting.
- Pumping.
- Rotating.

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- Power.

Limits of use.
Equipment selection through exercises:

- Choosing the drawworks, the drilling line, drilling line work.
- Choosing the pumps as per the drilling program.

BOPS & WELL CONTROL EQUIPMENT — 13.5 hours

BOP:

- Functions.
- Different types: ram BOP, annular BOP, inside BOP.
- Technical field characteristics.

Auxiliary equipment:

- Accumulation and closing unit.
- Choke manifold, chokes.
- Mud gas separator, vacuum degasser.

Equipment working test and pressure test.
API rules.
Exercises on BOP closing unit sizing.

KNOWLEDGE ASSESSMENT — 1.5 hours

Sessions

Pau - From 04/12/2027 to 04/16/2027 — **4420 €/HT**

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Training - Refining Processes and Petroleum Products

BRP-EN-P | Face-to-face only | 5 days

This course provides a broad technical information on refining processes and units, in order to understand a manufacturing scheme in relation with the qualities of the products

Level

Knowledge

Public

Professionals in the Oil & Gas industry (engineers, technicians...) or related sectors (in the technical, commercial, legal, finance, or HR departments) interested in oil refining

Objectives

Attendees will be able to implement the following skills:

- describe the composition, main characteristics and new trends of petroleum products
- explain the role of various processing units in a refinery
- describe the main manufacturing schemes encountered in oil refining
- acquire and use a common vocabulary with interlocutors in the oil services sector

Pedagogical & technical resources

- Detailed course material with a glossary of the main technical terms used in the refining industry
- Active participation of trainees through interactive games and quizzes to grasp the key points of the course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PETROLEUM STATISTICS — 0.25 day

Evolution of the structure of the Crude market and the characteristics of petroleum products on a European and global scale. Biofuels in formulations.

PETROLEUM PRODUCTS — 1 day

Principal components of petroleum products; general hydrocarbon classification and main impurities (sulfur,

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nitrogen, metals and asphaltenes, etc.).
Quality requirements for petroleum products regarding their utilization: quality specifications measured by standard tests, characteristics related to the product composition.

REFINING PROCESSES — 3.5 days

Crude oil fractionation

- Origin, overall characteristics and classification of crude oils.
- Yields and properties of straight-run cuts obtained by distillation, potential destinations.
- Industrial units: atmospheric distillation, vacuum distillation, light-ends fractionation.
- Typical process scheme, operating conditions.

Catalytic reforming and isomerization

- Octane improvement of virgin naphthas.
- Basics of processes, types of catalyst, product yields and hydrogen production.
- Industrial units: process flowsheets, operating conditions, equipment, low pressure processes.

Hydrorefining processes

- Main features of impurities removal by catalytic hydrogen treatment.
- Main refining applications.
- Example of ULSD hydrotreatment unit: operating principles, operating conditions.
- Sulfur recovery unit: amine washing, sulfur production, Tail gas treatment from Claus units.

Conversion units

- Outline of conversion and various cracking processes.
- Characteristics and origin of feeds for cracking.
- Conversion by means of thermal cracking: visbreaker, various cokers.
- Conversion by means of catalytic cracking: FCC and related units, gasoline sweetening and desulfurization, alkylation, production of ethers and propylene, hydrocracker and related units, hydrogen production (SMR, POX).
- Developments in hydrotreatment and hydroconversion of heavy residues.

Evolution of feeds and processes

- Co-processing
- Bio-refineries

MANUFACTURING FLOWSHEETS — 0.25 day

Main routes to major products.
Up to date refining schemes including the production of petrochemical intermediate products.
Impacts of the evolution of market demand and the quality of the products on manufacturing patterns.
Base lube oil manufacturing.

Sessions

Rueil-Malmaison -	From 12/14/2026 to 12/18/2026	**3440 €/HT**
Rueil-Malmaison -	From 12/13/2027 to 12/17/2027	**3520 €/HT**

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Training - Operation of a Binary Distillation Column - Level 2

CCDSS-EN-P | **Face-to-face only** | **5 days**

This course provides a deeper understanding of operating distillation columns under all conditions, with a practical understanding of operations and control systems through a hands-on experience

Level

Skilled

Public

Console operators and production supervisors, shift supervisors involved in the operation of distillation column

Objectives

Attendees will be able to implement the following skills:

- Give the meaning of driving parameters
- List the different regulatory systems,
- Identify their advantages and disadvantages in response to disruptions
- Logically present the main steps of stopping and starting a column

Pedagogical & technical resources

- Highly efficient learning process: use of a virtual column modeled on CORYS IndissPlus dynamic simulators
- Exercises are conducted in small groups of 2 to 3 participants, each group operating its own virtual column. Each exercise includes: a pre-discussion of the problem; definition of the target exercise objective; adequate time to run the virtual columns; open analysis of the results, shared with all participants; and practical conclusions related to the operation of the columns
- Attendees are invited to bring descriptions of their specific column control strategies for group discussion and analysis. Conclusions drawn from the exercises on the simulator can be transposed to other actual control schemes
- The content of the exercises can be customized to the needs and specific features of the client site
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

OPERATING PARAMETERS — 1 day

Behavior of flash mixtures: vaporized fraction, liquid-vapor separation and distribution of components according to their volatility.
Material balance of the column: concepts of cut point, separation quality and fractionation capability.
Heat balance: reflux and reboiling ratios and selectivity assessment.
Column pressure effects: pressure control and pressure profile along the column - Flow rates, concentration and temperature profiles.

FRACTIONATION CAPABILITY — 0.5 day

The trainees will experience these causes and effects on a debutanizer simulator.
Effects of liquid-vapor flow rates, reflux and reboiling ratios on separation - Influence of liquid-vapor traffic on concentration and temperature profiles.
Position of inlet tray.
Fractionation capability and its relationship to energy consumption.

MASS BALANCE & IMPLEMENTATION OF A TEMPERATURE CONTROL — 0.5 day

Impact of reflux and reboiler duty on material balance, and consequences on product specifications.
Impact of disturbances on column mass balance and product purities.
Definition of and how to identify the sensitive tray, and its influence on concentration profiles and products qualities.
Implementation of sensitive temperature control systems, advantages and limitations.

OTHER PROCESS CONTROL PARAMETERS — 1.5 days

Survey of operating disturbances, their common origins and causes - Pressure control and its impact on column stability.
Analysis of disturbances caused by the feed, composition, temperature or flow rate.
Reboiler fouling, loss of condensing, and tray flooding - External and internal reflux control, and reboiling control by means of flowrates or duty.
Optimizing heat balance, influence of additional energy through feed or reboiler, and benefits of low pressure operation.
Implementation of control systems based on quality measurement.

UPSETS — 1 day

Operation of the column at its limits: thermal equipment fouling, cooling water troubles and flooding - Failures of instruments and pumps.

START-UP - SHUTDOWN — 0.5 day

Analysis of the behavior in the column at each step of start-up and shutdown.

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Training - Gas Compression and Expansion, Compressors and Turbines

CCTAV-EN-P | Face-to-face only | 4 days

This course provides a clear understanding of the performance and technology of these types of equipment

Level

Expert

Public

Graduate engineers, new engineers and staff supervisors from the maintenance, process or operation department of refineries and petrochemical plants

Objectives

Attendees will be able to implement the following skills:

- Explain the operation of centrifugal and axial compressors, steam turbines and expanders
- List the essential elements for the sizing and choice of a compressor or turbine
- Cite potential incidents encountered on these machines

Pedagogical & technical resources

- Extensive use of digital applications related to industrial equipment
- Interactive course
- Specific, detailed and high level documentation
- Use of a dynamic simulator (centrifugal compressor + steam turbine)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS COMPRESSION & EXPANSION — 1 day

Ideal gas law and practical application; isentropic, polytropic compression; mass and volume capacity.
Practical compression laws: discharge temperature, power of compression.
Mollier diagram for gas and steam. Euler law, applications for compressors and turbines, characteristic curves.

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Velocities triangle. Impulse, reaction, type of blades.
Mach number: effect on temperature, pressure and density; subsonic and supersonic machines.
Dimensionless coefficients, specific speeds.

COMPRESSORS, TURBINES & EXPANDERS PERFORMANCE & OPERATION — 2 days

Axial and centrifugal compressors:

- Characteristic curves: invariant representations.
- Surge and stonewall; range of working efficiency.
- Capacity control methods. Start-up and vibration monitoring.

Steam turbines:

- Characteristics of a turbine: speed, specific consumption, efficiency.
- Influence of inlet and exhaust steam states.
- Speed governor and control systems. Safety devices.

Turbo-expanders:

- Technology and main uses.
- Safety devices.

TECHNOLOGY & ENGINEERING ASPECTS OF COMPRESSORS & TURBINES — 1 day

Technology:

- Casings, diaphragms, stator, blades.
- Rotor, journal and thrust bearings, internal and shaft seals, coupling.
- Balance and critical speeds. Lubrication and seal systems. Standard mechanical failures.

Engineering:

- API specifications. Information required for bidding. Factory acceptance tests.

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Training - Carbon Capture, Utilization and Storage (CCUS)

CCUS-EN-P | Face-to-face only | 3 days

The purpose of this training course is to give to the participants a better understanding of the CCUS technology various aspects from CO2 capture to storage and reuse

Level

Knowledge

Public

Technicians/engineers and decision makers working in industries that target CO2 emissions reduction and CCUS in their road map

Objectives

Attendees will be able to implement the following skills:

- Identify CCUS interest in the energy transition
- Understand the different technical bricks
- Identify cost references for each segment

Pedagogical & technical resources

- Training materials, videos
- Practical exercices ans study case
- Discussions with the audience

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRESENTATION OF THE CCUS VALUE CHAIN — 0.25 day

Context: CCUS's share of emissions reductions.
Economics of CCUS projects: cost of each item.
Overview of current achievements.

CO2 TREATMENT AND STORAGE — 0.75 day

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Physicochemical properties of CO2.
CO2 transport: pipeline, truck, sea, train, ...
CO2 compression: by compressor or pump.
Terrestrial and geological storage.

CO2 CAPTURE — 1.5 days

Capture technologies (post-combustion, pre-combustion, oxy-combustion, industrial processes).
Process diagram – main operating conditions.
Comparison of the different technologies.
Project status.

CO2 USES — 0.5 day

Direct use: food.
Syngas production (RWGS) enabling synthesis of:

- Fuels.
- Methanol.
- Petrochemicals intermediates.

Sessions

Rueil-Malmaison -	From 11/17/2026 to 11/19/2026	**3020 €/HT**
Rueil-Malmaison -	From 11/16/2027 to 11/18/2027	**3090 €/HT**

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Training - Refining and Petrochemicals Operations Shift Supervisor

CDQRC-EN-P | **Face-to-face only** | **10 days**

Develop and reinforce operations team management skills

Level
Skilled

Public
People planned to be assigned to a new position as operations shift supervisor or team leader

Objectives
Attendees will be able to implement the following skills:

- Clarify the responsibilities of a shift supervisor and those of other team members
- List the elements of management of the operations of their sector during and outside business hours
- List the points of a relevant communication according to the interlocutors concerned
- Clarify the rights and duties of a shift supervisor with respect to safety

Pedagogical & technical resources

- Interactive delivery method with intensive feedback/sharing from participants' knowledge and experience
- Team work on different exercises and real incident case studies
- Feedback analysis of selected real accidents
- Role playing simulation

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ROLES & RESPONSIBILITIES WITHIN SITE ORGANIZATION — 2 days

Site's rules and procedures daily field application. HSE objectives and equipment integrity ownership.
Basic tools used at operations shift supervisor's position: risk analysis, incident report, management of change...
Commitment and implementation for new site's initiatives.

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DAILY PLANT AREA MANAGEMENT — 4 days

Potential problems: risk underestimation, interfaces and procedures improperly managed, requirements/field presence less than adequate.
Plant operations from the field: housekeeping, routine activity follow-up, information reporting from outside and panel operators, sampling and analysis results usage, equipment integrity, operational issues reporting within site organization.
Plant supervision from the panel: respect of operating windows and safety devices, (un)validation of abnormal situations, anticipation of potential impacts on other plant areas, utilities and water treatment. Monitoring of consumptions, atmospheric and water effluents. Operating cost reduction and economical optimization impact.
Interfaces with other services: procedures writing/validation, equipment (de)commissioning, permit to work validation and field activity follow-up. Products swaps between areas, product reception and shipping activities with third parties.
Specific operations management: abnormal operations, special operations, emergency response.

DAILY TEAM MANAGEMENT — 4 days

Human behavior: information quality, workload management, individuals' and team's motivation.
Activity organization: shift handover, information sharing, planning and priorities management. Task request, delegation and controls.
Team meeting: organization, preparation, progression, deliverables and follow-up. Lessons learned, safety toolbox, best practices...
Operational problems solving: listing facts, brainstorming, decision making.
Up & down communication: relations with different persons. Solving dispute issues within the team.
Operational budget administration: responsibilities, regulation and usual risks.
Commitment regarding HSE approach, reacting to unsafe acts and conditions, enforcing safety rules. Continuous improvement.
Individual and team motivation: achievable targets (HSEQ, reliability, profitability...). Exemplary behavior, commitment and proactivity. Individual yearly appraisal, coaching, training.
Auto-evaluation of one's own behavior: leadership, communication and motivation/warning to employees, information sharing.

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Training - Economic Framework of Petrochemicals

CEP-EN-P | Face-to-face only | 3 days

This course allows the participants to deepen their knowledge on the petrochemicals sectors and to assess the main economic challenges in these sectors

Level

Knowledge

Public

All professionals wishing to improve their understanding of the functioning of petrochemicals industry

Objectives

Attendees will be able to implement the following skills:

- Understand the economic framework and the key challenges of petrochemicals industry
- Identify key interfaces between petrochemicals and other hydrocarbon sectors such as upstream (Oil & Gas) and downstream value chain (refining/petrochemicals)

Pedagogical & technical resources

Case studies and exercises in groups

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ENVIRONMENT FRAMEWORK & UPSTREAM PETROCHEMICALS — 1 day

Industry fundamentals: from coal/oil/gas to petrochemicals and global/regional outlook.
Petrochemicals: key building blocks processes:

- Olefins (C2, C3, C4).
- Aromatics (benzene, paraxylene).
- and associated traditional technologies (steamcracker, FCC, reforming...).

Steamcracker economics:

- World/regional capacities.
- Typical yields and cost of production (methodology and comparison).

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- Petrochemicals: opportunities (shale gas) and challenges (climate change, capex, shale gas...).

Case study: optimization of steamcracker feedstock, steam cracker margin/income.

OLEFINS (C2=/C3=) 0.75 day

Review of processes (cracker and FCC) and new technology (MTO, CTO, PDH...).
Key players and market perspectives (new investments).
Sector challenges (production increase, production costs...).

C4 & AROMATICS 0.25 day

C4 value chain (butadiene and butylenes), brief technical review of technologies, key actors and markets.
C5 value chain (isoprene, DCPD, PIPS).

INVESTMENT PROFITABILITY STUDIES 1 day

Value creation and capital cost, cash flows, discounting principle and inflation impact.
Standard global profitability analysis: cash flow schedule, economic criteria (net present value, internal rate of return, etc.).
Introduction to risk analysis.
Case study: steamcracker profitability.

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Training - Economic Framework of Refining

CER-EN-P | Face-to-face only | 5 days

This course provides a complete view of all the fundamental aspects and challenges of the economic framework in which the refining industry is evolving

Level

Knowledge

Public

Technical, operating and engineering personnel working in the refining industry, trading and commercial specialists, independent consultants, process licensors, catalyst manufacturers and refining subcontractors

Objectives

Attendees will be able to implement the following skills:

- Calculate product marginal value, refinery margins and process unit margins
- Simulate refinery operations and product blending
- Analyze the result of a linear programming model optimization
- Evaluate project profitability

Pedagogical & technical resources

- Case studies and exercises derived from present refinery situations
- Economic optimization using Excel
- Quiz

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNICAL OVERVIEW — 0.25 day

Brief technical presentation of the main refining units: distillation, conversion, blending, etc.
Refinery scheme evolution.

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OIL MARKETS & TRADING — 0.75 day

Oil supply and demand fundamentals and evolution.
Petroleum physical trading (spot, forward).
Crude oil and petroleum product pricing: benchmark, quality differential, etc.
Financial trading (futures) and hedging strategies for a refiner.

REFINING CONTEXT — 1 day

World petroleum product demand.
Refining supply: overcapacity, types and quantity.
Main challenges: deep conversion, new product specifications, petrochemical integration, environment, etc.
Projects and perspectives.

REFINING MARGINS & COSTS — 0.75 day

Refinery margins and costs: definitions and evolution worldwide.
Unit margins and intermediate product valuation.
Case studies: crude oil arbitrage, Fluid Catalytic Cracking (FCC) unit margin.

REFINERY BLENDING SIMULATION — 0.25 day

Case study: managing the blending operation of a refinery taking into account the economic and technical (product specifications, capacities, etc.) constraints.

OPTIMIZATION OF REFINING OPERATIONS - LINEAR PROGRAMMING — 1 day

Linear programming (LP) principles: linear equation, objective function, profit maximization or cost minimization, Simplex method, graphic interpretation, etc.
Analysis of the LP results: optimum properties, marginal costs, domain of validity of the results, etc.
Case study on Excel: explanation of a refinery model matrix (material balances, product specifications, utilities consumption, objective function, etc.); team work on the optimization of a cracking refinery and on the result analysis.
Principles of refining management: constraints, operational organization.
Monthly program to daily operations.

INVESTMENT PROFITABILITY STUDIES — 1 day

Value creation and capital cost, cash flows, discounting principle and inflation impact.
Standard global profitability analysis: cash flow schedule, economic criteria (net present value, internal rate of return, etc.).
Introduction to risk analysis.
Exercises on various investment profitability studies for refineries and petrochemical plants.

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Training - Fundamentals of Production

CHAINEP-EN-P | Face-to-face only | 2 days

This course provides an introduction to Oil & Gas production, along with a glossary of terms, covering fundamentals of technology, chain structure from well to export terminal, skills and job positions involved in operating production facilities

Level

Awareness

Public

Non-technical staff or technical professionals not directly involved in hydrocarbons production (managers, executives, technicians, staff of human resources, finance of projects departments...)

Objectives

Attendees will be able to implement the following skills:

- Understand the different phases of the Oil & Gas production process
- Understand organizations, skills and job positions involved in operating production facilities
- Acquire a complete view of the Oil & Gas production chain, stretching over technical, business and economic issues

Pedagogical & technical resources

- Course delivered by industry specialists
- Numerous illustrations and case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

THE OIL & GAS CHAIN: PRODUCTION POSITION — 0.5 day

Positioning of the production in the value E&P chain.
World primary production.
Issues and technical constraints:

- Conventional resources.

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- Unconventional resources.

Job descriptions and skills for production activities.

ONSHORE & OFFSHORE PRODUCTION 0.5 day

Technical specifications, operating modes.
Operating patterns and mapping fields.
Technical architectures.
Organization (remote site, extreme conditions, manning, shift...).
Case studies: FPSO, wet gas field (onshore), oil fields operated with reinjection, remote control room, early production facilities...

FROM WELL TO EXPORT POINT 1 day

From reservoir to wellhead: hydrocarbons and well effluent behavior.
Well techniques, production techniques and well servicing.
Surface facilities and treatment operations.
Metering and expedition.
Health Safety and Environment, sustainability.
Budgets (CAPEX, OPEX) during the life cycle of a production field.

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Training - Chemicals used in Production Activities

CHIMIC-EN-P | **Face-to-face only** | **5 days**

This comprehensive course provides an advanced knowledge on how production chemicals may improve production processes and cure problems in Oil & Gas production. Chemical natures, properties, selection, treatments monitoring, troubleshooting, optimizations are covered

Level

Knowledge

Public

Production Engineers looking for comprehensive technical information on production chemicals use, monitoring, optimization

Objectives

Attendees will be able to implement the following skills:

- Detail the nature and purpose of each frequently used production chemicals, their specificities and limits
- Explain in which domain and how chemical treatments are applicable
- Select and apply safely the best treating chemicals
- Monitor chemical treatments and detect dysfunctions
- Evaluate chemical performance in a given process, optimize chemical treatments

Pedagogical & technical resources

- Highly interactive training by industry specialist lecturers
- Several applications and case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CHEMICAL TREATMENT IN PRODUCTION FIELD — 0.5 day

Review of different types of chemicals used in Oil & Gas production.
Brief description of the associated logistics and chemical-specific hazards.
Methods for implementing chemical treatment.

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CHEMICALS FOR OIL TREATMENT — 1.5 days

Purpose, nature and specificities of each: demulsifiers, defoamers, corrosion inhibitors, paraffin control chemicals, drag reducers...
Methodology for selecting the correct chemical and field testing.
Ways for monitoring during operation.
Optimization of the chemical injection and chemical performance evaluation.
Scale removal and prevention in well tubing.
Troubleshooting case study.

CHEMICALS FOR GAS TREATMENT — 1 day

Purpose, nature and specificities of each: defoamers, foamers, corrosion inhibitors, hydrate inhibitors (Methanol, DEG, TEG, KHI)...
Methodology for selecting the correct chemical and field testing.
Ways for monitoring during operation.
Optimization of the chemical injection and chemical performance evaluation.
Use of H2S scavenger.
Troubleshooting case study.

CHEMICALS FOR INJECTION & PRODUCED WATER PROCESSING — 1 day

Purpose, nature and specificities of each: polyelectrolyte, chlorine, bactericide, oxygen scavenger, deoilers, corrosion inhibitors, acids, mineral scale inhibitors...
Methodology for selecting the correct chemical and field testing.
Ways for monitoring during operation.
Optimization of the chemical injection and chemical performance evaluation.
Troubleshooting case study.

MINI PROJECT — 1 day

Chemical treatments deployment applications.

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Training - Degradation and Corrosion Prevention

CICP-EN-P | Face-to-face only | 5 days

This course provides a practical knowledge of pressure equipment and piping corrosion, and explains prevention strategies

Level

Skilled

Public

Experienced inspection, maintenance, HSE, process engineers, managers and technical staff involved in safe operation and integrity of pressure equipment installed in refineries, chemical and petrochemical plants

Objectives

Attendees will be able to implement the following skills:

- Recognize the different forms of deterioration affecting industrial equipment
- Specify the elements to be taken into account to prevent corrosion
- Specify the elements to be taken into account to predict and control the evolution of an installed corrosion

Pedagogical & technical resources

- Active teaching methods are used to promote a pooling of experience, under the lead of inspection specialist
- Actual accidents in refineries and chemical plants are analyzed to be aware of the risks
- Wide use of samples, videos and pictures to develop practical case studies for pressure equipment such as piping, heat exchanger, reactor, distillation column, boiler, etc

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

METALLURGY USED FOR PRESSURE EQUIPMENT & PIPING MANUFACTURING — 1 day

Ferrous and non-ferrous material: microstructure, composition, mechanical properties.
Plates, forging, castings, piping, rolling, welding, post weld heat treatment.
Pressure equipment design and manufacturing.

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USUAL TYPES OF CORROSION & DETERIORATIONS — 1 day

Different types of industrial corrosion: uniform, pitting, crevice, intergranular, hydrogen embrittlement stress corrosion cracking, corrosion-erosion, galvanic, selective.
Definitions and basic mechanism: wet corrosion, dry corrosion.
Metallurgical deterioration: brittle fracture, chromium precipitation, creep, fatigue.

TYPES OF CORROSION IN OIL & GAS INDUSTRIES & PETROCHEMICAL PLANTS - API 571 — 1.5 days

Use API 571 to study each type of corrosion along with possible prevention for pressurized vessel and piping.
Application to old plants already in service, or during design of new plants.
Specific corrosion occurring in industrial installations:

- Hydrogen induced cracking, high temperature hydrogen attack, high temperature sulfur corrosion, oxidation, flue gas corrosion, naphthenic acid corrosion, polythionic acid corrosion, caustic soda stress cracking, Amines corrosion, CO2 corrosion.

Specific corrosion existing in chemical industry: corrosion by mineral acids, bases, nitrates, ammonia or chlorine.
Many corrosion case studies observed in process industry units: identification of corrosion root cause and mitigation to apply.

CORROSION PREVENTION & INSPECTION - API 510 — 1.5 days

Material selection and detailed engineering design to avoid corrosion based on API 510 principles.
Identification of operating windows.
Corrosion control by means of sampling, use of corrosion coupons and probes.
Cathodic protection with sacrificial anodes or imposed current.
Anticorrosion coatings and cladding.
Non-destructive testing.
Risk Based Inspection according to API 581.

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Training - Cementing Practices

CIM1-EN-P | Face-to-face only | 5 days

This course provides the knowledge and skills needed to design a cementing program

Level

Knowledge

Public

Engineers, supervisors and lab professionals interested in cementing in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- Master the vocabulary specific to cementing
- Understand and use primary cementing techniques and procedures
- Select cement and necessary additives
- Calculate major parameters in a cementing operation
- Assess the quality of a cementing job

Pedagogical & technical resources

- Exercises, videos
- Application to a real case
- Visit of a laboratory
- Application to a real case (project) for participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNIQUES & JOB PROCEDURES — 9 hours

Primary cementing.
Cement job design.

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Job planning and preparation.
Casing running.
Cementing job.
Cementing calculations.

CEMENT & SLURRIES — 6 hours

Cement, cement with environmental impact reduction (CO2).
Special slurries and additives.
Formulation and laboratory tests.
Rheology of mud and slurries.

SPECIAL CASES — 6 hours

Multistage cement job.
Liner.
Cement plugs.

CEMENTING EQUIPMENT — 3 hours

Pumps.
Mixers.
Cementing head.
Cement plugs.

EVALUATION OF THE CEMENTING JOB — 4 hours

Principles and interpretation of the cement logs:

- Thermometry.
- Sonic (CBL - VDL).
- Ultrasonic (USIT).

Log analysis on a real case.

KNOWLEDGE ASSESSMENT — 2 hours

Sessions

Pau - From 03/15/2027 to 03/19/2027 — **4420 €/HT**

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Training - Advanced Cementing Practices

CIM2-EN-P | Face-to-face only | 5 days

This course aims to deepen the understanding and develop the skills needed to design efficiently a cementing program

Level
Skilled

Public
Engineers, supervisors and lab professionals involvedin cementing in water, geothermal or oil/gas drilling operations

Objectives
Attendees will be able to implement the following skills:

- Acquire a detailed knowledge of the different cementing techniques
- Address special cases: liner, highly deviated wells, gas zones
- Design a full cementing program for a real typical case
- Assess the quality of a cementing job

Pedagogical & technical resources

- Exercises
- Teamwork on a project

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNIQUES & JOB PROCEDURES — 8 hours

Cementing program.
Job planning and preparation:

- Casing running.
- Selection of the fluids and flows.

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- Cementing calculations.
- Primary, surface, multistage, liner cementing.
- Cement plugs.

CEMENT & SLURRIES — 3 hours

Cement chemistry, cement with environmental impact reduction (CO2).
Special slurries and additives.
Formulation and laboratory tests.
Rheology.
Displacement in eccentered annulus.
Salt zone and temperature problems.

SPECIAL CASES — 6 hours

Gas zone cementing.
Deviated and horizontal wells cementing.
Remedial techniques.
CO2 environment (CO2 resistant cement).

CEMENTING PROJECT — 6 hours

Design of a whole well cementing job.

EVALUATION OF THE CEMENTING JOB — 6 hours

Principles and interpretation of the cement logs:

- Thermometry.
- Sonic (CBL - VDL).
- Ultrasonic (USIT).

Logs analysis on a real case.

KNOWLEDGE ASSESSMENT — 1 hour

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Training - Negotiation of Exploration-Production Contracts

CNEP-EN-P | Face-to-face only | 4 days

To have an overview of the EP patrimonial contract negotiation and to develop or deepen a skill in negotiating, using rigorous methodology and innovative approach

Level
Skilled

Public
People who could participate in one or more stages of an EP contract negotiation: negotiators, project managers, explorers, engineers, lawyers, economists, advisors, managers from the public sector related to the energy sector and representatives of national companies

Objectives
Attendees will be able to implement the following skills:

- Describe the different ways to access acreage
- Use a rigorous methodology and innovative approach for upstream contracts negotiation
- Make an objective and comprehensive report to their management and anticipate objections

Pedagogical & technical resources
Simulation of a negotiation (role play where each stakeholder is played by a different team) allowing real-life negotiation case

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

REMINDER OF CONTRACTUAL & FISCAL FRAMEWORK OF EXPLORATION-PRODUCTION — 0.5 day

Concession, Production Sharing Agreement, Service Contracts.
Analysis of the contract contents' analysis.
Distribution of the different items into homogeneous "bundles": clauses related to the exploration stage, clauses conducting operations, clauses related to economic and tax calculations, to pure legal issues, to financial terms, etc.

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Important clauses of a contract to prepare a negotiation.

REMINDER OF ECONOMIC EVALUATION OF E&P PROJECTS — 0.5 day

Cost of capital and discount rate, value creation.
Economic criteria for project evaluation: net present value (NPV), internal rate of return (IRR), payback period, etc.
Global profitability analysis, the impact of taxation and inflation on economic indicators.

NEGOTIATION SKILLS — 0.5 day

Negotiation principles: methodology and techniques.
Preparation for negotiating: principles, economic reminders, technical reminders (reserves, etc.).

ROLE PLAY — 2.5 days

Case study preparation per team (Joint Venture: JV, State).
Preparation for the first round of negotiation (contact and consultation).
First simulation and debriefing, updating the negotiation plan.
Preparation for the second round of negotiation (confrontation and early conciliation).
Second simulation and debriefing, updating the negotiation plan.
Preparation for the third round of negotiation (construction of the agreement and conclusion).
Third simulation and debriefing.
Preparation of the report to the management and presentation.

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Training - CO2 Geological Storage Overview

CO2-EN-P | Face-to-face only | 3 days

This course provides participants with a global knowledge on what is really CO2 geological storage and also a clear understanding of the concepts and key techniques related to CO2 geological storage

Level

Awareness

Public

Directors, executives, managers or professionals working in administrative offices dealing with CO2 geological storage

Objectives

Attendees will be able to implement the following skills:

- Describe the global concepts of CO2 geological storage
- Examine the criteria to select potential CO2 geological storage
- Integrate key techniques and develop solutions for CO2 geological storage

Pedagogical & technical resources

Interactive presentations, practical exercises and hands-on activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CCS & CO2 GEOLOGICAL STORAGE

Definition of CCS concept.
Norms and future laws regarding CO2.
The CO2 geological storage solution.
Types of geological formations that can store CO2 and their complexities.
Challenges for assessing a potential site.

ISSUES & UNCERTAINTIES FOR CO2 GEOLOGICAL STORAGE

The methodology of evaluation of a potential site.

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Process of decision making regarding the choice of a site.
Characterization and modeling of the CO2 reservoir.
Injection of CO2 and evolution through time.
HSE concepts relative to CO2 geological storage.
Global uncertainties analysis for CO2 geological storage.
Conclusion on the best solution for CO2 geological storage.

LESSONS LEARNED & FUTURE FOR CO2 GEOLOGICAL STORAGE

Examples of worldwide cases CO2 storage and analysis.
How to define cost and budget around CO2 geological storage.
The future for CO2 geological storage.
Wrap-up session.

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Training - CO2 Geological Storage for Geoscientists and Reservoir Engineers

CO2RES-EN-P | Face-to-face only | 3 days

This course provides participants with a practical knowledge on CO2 geological storage and also a clear understanding of the techniques and steps (evaluation, characterization, modeling, injection and evolution) related to CO2 geological storage

Level
Skilled

Public
Geoscientists, geologists, geophysicists, petrophysicists and reservoir engineers

Objectives
Attendees will be able to implement the following skills:

- Understand the techniques relative to CO2 geological storage
- Develop a clear understanding of the evaluation, characterization, modeling and evolution through time of a reservoir for CO2 storage
- Find solutions in assessing a potential reservoir for CO2 geological storage

Pedagogical & technical resources
Interactive presentations, practical exercises and hands-on activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CO2 GEOLOGICAL STORAGE

Reasons to make a CO2 geological storage.
Types of different reservoirs or geological formations that can store CO2.
Technical barriers for CO2 geological storage.
Issues and concerns in assessing a potential site and reservoir.
Challenges for a stable CO2 storage through time.

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TECHNICAL WORKFLOW FOR CO2 GEOLOGICAL STORAGE

Data gathering and assessment.
Evaluation of parameters to define a potential site.
Characterization of the reservoir for CO2 storage and its uncertainties.
Drivers to define the best geological formation and rock properties needed.
Modeling the geology in a 3D Model for CO2 geological storage.
Modeling the fluids, dynamic interaction and well injection for CO2.
Modeling of the CO2 dynamic evolution through time inside the reservoir & its behaviors change.
Conclusion regarding all these steps for assessment and modeling.

LESSONS LEARNED & FUTURE FOR CO2 GEOLOGICAL STORAGE

Examples of successful and unsuccessful worldwide cases CO2 storage.
Defining conditions and innovative solutions for a successful long-term CO2 storage.
Future improvement for CO2 geological storage.
Others considerations out of geology and engineering.
Wrap-up session.

Sessions

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Training - Cogeneration - Combined Cycles

COGENE-EN-P | Face-to-face only | 3 days

This course deals with cogeneration units in existing plants or new projects

Level
Skilled

Public
Graduate engineers and technicians whose activities are related to the design and/or operation of these installations: engineers and technicians from engineering companies, technical and HSE support, operation team, personnel from insurance companies

Objectives
Attendees will be able to implement the following skills:

- Describe the conditions for combined thermal and mechanical power generation
- List the criteria for evaluating and monitoring the performance of the various elements constituting a cogeneration

Pedagogical & technical resources
Several practical applications related to actual industrial cases

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

COGENERATION: DIFFERENT CYCLES - GAS TURBINES & WASTE HEAT RECOVERY — 1.25 days

Operating principle and operating conditions of cogeneration and combined cycles - Typical schemes.
Main parts of the different cycles:

- Boiler, steam turbine (back-pressure or condensation).
- Gas turbine, waste heat recovery boiler.

Energy balance and energy performances of each elementary operation: compression, combustion and expansion.
Efficiency enhancement, heat recovery from exhaust gases (air preheater, waste heat recovery boiler).

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Different operating modes (simple waste heat recovery, post-combustion, separate boiler) and performances.
Application: comparison of performance, mechanical and thermal energy split.

COGENERATION: PRODUCTION OF STEAM — 1 day

Boiler Feed Water (BFW) quality, description of the physical and chemical required treatments.
Description of conventional boilers and waste heat boilers: water circuit, steam circuit, fuel circuits.
Operating conditions - Fuel consumption per ton of steam, depending on boiler type and operating conditions.
Main process control loops: boiler feed water, pressure and steam temperature, combustion, flue gas circulation draft.
Combustion monitoring, analyzers, aim and meaning of each measured parameter. Safety equipment and sequences.

COGENERATION: STEAM END-USES — 0.75 day

Steam as a heating medium and mechanical driving fluid.
Steam pressure level requirements, depending on the end-use. Steam network balancing.
Steam as a heating medium: conditions for its distribution and efficient utilization.
Steam turbines: operating principle, expansion work and efficiency, and produced energy.
Static expansion: expanded steam characteristics, steam de-superheating.

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Training - Compressors Maintenance

COMPMAI-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of the technology, performance and maintenance of centrifugal and positive displacement compressors

Level

Skilled

Public

- Engineers and technicians involved in centrifugal and positive displacement compressor maintenance or engineering
- Employees in charge of maintenance running of the compression systems

Objectives

Attendees will be able to implement the following skills:

- Describe the behavior and the technology of compressors
- Provide the maintaining solutions applied in their compression units
- Establish a diagnosis of the incidents and participate in the troubleshooting meetings

Pedagogical & technical resources

- Functional approach for a better understanding
- Interactive course
- Numerous examples and cases studies from the Oil & Gas production industry and analysis of manufacturer file

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNOLOGY & OPERATION — 2 days

Centrifugal compressors:

- Different types of centrifugal compressors.

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- Component parts and architecture of a centrifugal compressor.
- Technology of the essential components: stator, rotor, bearings, thrust bearing, seals.
- Vibrations, critical speed, dynamic balancing.
- Auxiliary equipment: lubrication system, buffer gas, balancing line...
- Safety parameters: axial displacement, vibrations, bearing and thrust bearing temperatures, oil pressure...

Reciprocating compressors:

- Different types of reciprocating compressors.
- Component parts and construction of a reciprocating compressor.
- Technology of the essential components: cylinder, piston, valves, sealing systems, crankshaft, connecting rod...
- Auxiliary equipment: lubrication of motion parts and cylinders, cooling interstage and cooling devices systems, connections to the flare.

Rotary compressors:

- Different types: screw, liquid ring, lobes, sliding vanes...
- Component parts and architecture of a rotary compressor.
- Auxiliary equipment: lubrication system.
- Typical using.

MAINTENANCE (PREVENTIVE, CONDITIONAL, CORRECTIVE) — 2 days

Preventive maintenance: systematic actions, routine, alignment...
Conditional maintenance: vibrations measurement, oil of lubrication analysis, thermography...
Corrective maintenance: mounting, dismounting, metrology, repairing technics.

ANALYSIS OF A MANUFACTURER DATABOOK — 0.5 day

Data sheet.
Technologic choices.
P&ID reading.

TROUBLESHOOTING — 0.5 day

Failure and incidents: surge, slugging, over limits functioning...

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Training - Compressors Operation

COMPOP-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of the technology, performance and operation of centrifugal and positive displacement compressors

Level

Skilled

Public

- Operation and technical department staff involved in the operation of centrifugal and positive displacement compressors
- Employees in charge of running and checking compression systems

Objectives

Attendees will be able to implement the following skills:

- Describe the technology of centrifugal and positive displacement compressors
- Select the adequate operating conditions
- Explain the main operating problems
- Be involved in a troubleshooting process

Pedagogical & technical resources

- Functional approach for a better understanding
- Numerous examples and cases studies from the Oil & Gas production industry and analysis of manufacturer file
- Applications with dynamic simulators

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS COMPRESSION BASICS — 0.5 day

Compressor types. Selection.

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Gas compression: key points, pressure ratio. Gas composition, typical thermodynamical laws and models. Isothermal, isentropic, actual compression.
Compression work and power.
Single and multistage compression. Compressor protection against wet gases.

TECHNOLOGY & PERFORMANCE — 2 days

Centrifugal compressors:

- Centrifugal compressor typical parts and arrangements.
- Technology of the essential components: stator, rotor, bearings, thrust bearing, seals.
- Vibrations, critical speed, dynamic balancing.
- Auxiliary equipment: lubrication system, balancing line, mechanical seals auxilairies...
- Safety devices: axial displacement, vibrations, bearing and thrust bearing temperatures, oil pressure...
- Compression mechanism through a compressor stage.
- Operation limits. Surge. Various antisurge systems.
- Characteristic curves of the circuit and the compressor. Influence of the operating conditions: intake pressure and temperature, nature of the gas, rotation speed, IGV position.

Reciprocating compressors:

- Reciprocating compressor parts and arrangements.
- Technology of the essential components: cylinder, piston, valves, packings, crankshaft, connecting rod...
- Auxiliary equipment: lubrication of moving parts and cylinders, interstage coolers and cooling devices systems, flare connections.
- Safety devices: vibrations, rod drop, temperatures...
- Piston side compression map vs operating conditions Theoretical and practical cycles.
- Flow control with typical devices: spillback line, unloading, clearance pocket actuation,(e-)Hydrocom™ system.

Rotary positive displacement compressors:

- Rotary positive displacement compressor technologies.
- Auxiliary equipment.
- Operation: start-up/shutdown, survey, flow control.

OPERATION — 2.5 days

Centrifugal compressors:

- P&ID and logic security matrix analysis.
- Flow rate regulation. Adaptation to service conditions.
- Start-up, shutdown and isolation: hazards related to these phases.
- Survey and monitoring the compressor and auxiliary equipment under normal operating conditions.
- Case studies: typical incidents.
- Applications with dynamic simulator: start-up, shutdown, operation vs suction conditions.

Reciprocating compressors:

- Conventional control: start-up, shutdown associated risks.
- Monitoring the compressor and auxiliary equipment under normal operating conditions.
- Case studies: incidents.
- Applications with dynamic simulator: start-up, shutdown, operation vs suction conditions.

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Training - Core Analysis for Reservoir Characterization

CONSCAL-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical understanding of methods, procedures and issues related to laboratory conventional and special core analysis for describing and evaluating reservoir rock properties, and all considerations that should be taken into account for reservoir characterization

Level

Skilled

Public

Geoscientists, petrophysicists, reservoir engineers, petroleum engineers and other E&P professionals willing to deepen their knowledge in conventional and special core analysis

Objectives

Attendees will be able to implement the following skills:

- Discuss rock properties used in reservoir modeling and reservoir simulation models
- Discuss, interpret and validate a CCAL and a SCAL report and review a quality control process
- Design a SCAL program with regard to given objectives

Pedagogical & technical resources

- Highly interactive course alternating theory, exercises and field cases
- Use of the SCAL (Special Core Analysis) license free simulator SCORES

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CORING & CORE ANALYSIS — 0.5 day

Introduction.
Business value of core analysis demonstrated on real life examples.
Necessary quality procedures at the start of a measurement program.
Coring methods (conventional vs. pressure coring, decompression during tripping).
Core preservation.
Core cleaning.

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Representative wettability (fresh vs. restored state).
Conventional and Special Core Analysis (SCAL).

GENERALITIES ON TWO-PHASE FLOW PROPERTIES — 0.5 day

Darcy's law for two phases, relative permeability.
Capillary pressure.
Wettability (Amott and USBM methods).
Impact of wettability on relative permeability and capillary pressure.
Basics of JBN analysis for the UnSteady-State experiment.
Effect of capillary pressure demonstrated by hands-on simulation, using the SCORES SCAL simulator.

CONVENTIONAL CORE ANALYSIS — 1 day

Porosity definition and measurement.
Permeability (absolute) definition and measurements.
Formation factor and Resistivity Index definition and measurement.
Mercury injection (MICP) for reservoir saturation height function and pore size distribution.
Recent developments in MICP showing important problems in MICP for low permeability rock when assessing transition zones.

SPECIAL CORE ANALYSIS (SCAL), MEASUREMENTS OF SCAL PROPERTIES — 1 day

Overview of measurement methods and data interpretation for relative permeability and capillary pressure.
Steady-state technique, in-situ saturation monitoring.
Unsteady-state technique, in-situ saturation monitoring.
Multi-speed centrifuge technique.
Single-speed centrifuge technique.
Porous plate technique.
Analysis of centrifuge data using Hassler-Brunner, Forbes methods.
Analysis of centrifuge data using Hagoort method.
Effect of relative permeability on capillary pressure measurement demonstrated by hands-on simulations using the SCORES SCAL simulator.

QUALITY CONTROL OF AVAILABLE DATA — 1 day

Sample selection using X-ray CT for homogeneity assessment.
Representative wettability, special considerations for transition zones.
Recognizing unusual features.

AVERAGING PETROPHYSICAL PROPERTIES — 0.5 day

Saturation height function assessment.
Leverett-J function.
Initial water saturation.
Rock-typing.
Gridding for reservoir simulation.

DESIGN OF SCAL PROGRAM — 0.5 day

Demonstration step-by-step approach.
Establish SCAL program objective.
Understanding of strength and weaknesses of each SCAL method.
Need for imbibition capillary pressure to interpret relative permeability data.

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Training - Upstream Project Construction Site Administration

CONST2-EN-P | Face-to-face only | 5 days

This course provides an overview of team management, site control scheduling, cost control, contracts, precommissioning, commissioning and quality

Level
Skilled

Public
Field engineers and supervisors involved in the construction activities of an upstream project

Objectives
Attendees will be able to implement the following skills:

- Evaluate and manage construction site risks
- Apply construction management skills
- Monitor and control quality, schedule, and costs during construction activities

Pedagogical & technical resources

- Exercises for each step of the construction process
- Numerous examples taken from Oil & Gas construction activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TEAM MANAGEMENT — 2 days

Site work organization, roles and responsibilities, organization charts, coordination of site supervisors.
Communication: purpose and management of periodic meetings, information tools, team-building.
Management of site access cards, night shifts, back-to-back rotation, shift handover reports.
Vendors mobilization/demobilization depending on contract types. Contract reviews.
Management of individual performance.
Relationship with contractors and subcontractors: contracts (lump sum, reimbursable, change-orders),

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conflictual situations.
Relationship with field operations.
Reporting: how to prepare clear reports.

SITE CONTROL SCHEDULE, COSTS & CONTRACTS — 2 days

Schedule: main field constraints, optimization of the detailed construction schedule.
Contractual progress measurement and reporting. Recovery plan in case of delays.
Cost control: reporting, change management.
Construction All Risk insurances (CAR).

PRECOMMISSIONING, COMMISSIONING & QUALITY — 1 day

Quality control of work on site, non-conformity reports, technical queries, site instructions.
Material control: warehouses, storage areas, receipt/control of main equipment and bulk material.
Mechanical completion, commissioning and start-up of the facilities.

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Training - Upstream Project Construction HSE Management

CONST3-EN-P | Face-to-face only | 5 days

This course raises awareness about HSE on the construction site and the necessity to develop management tools

Level
Skilled

Public
Field engineers and supervisors from the upstream sector who are responsible for the overall management of construction site activities

Objectives
Attendees will be able to implement the following skills:

- Evaluate and manage HSE and security risks on the construction site
- Apply construction management skills
- Monitor and control HSE tools

Pedagogical & technical resources

- Exercises for each step of the construction process
- Numerous examples taken from Oil & Gas construction activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SAFETY RISK MANAGEMENT ON THE FIELD — 0.5 day

HSE prevention plan: definition and evaluation of risk, subcontractor organization and training. Preventive action plan.

HSE MANAGEMENT — 1.5 days

HSE incident management: root cause analysis of incidents, including consequence analysis. Immediate actions. Corrective and preventive actions. Reporting. Communication and crisis management. Emergency

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response plan. Communications. Experience feedback.

ON SITE HSE — 0.5 day

Surveillance: surveillance plan, field HSE audits, safety tour, behavioral observations, subcontractor HSE evaluation. Monitoring of SIMOPS activities.

AUDITS — 0.5 day

Objectives of an audit. Pre-audit preparations: boundaries, expectations, checklists, plans. Findings vs. expectations.

HAZARD IDENTIFICATION & RISK ASSESSMENT OF MAINTENANCE & CONSTRUCTION WORKS — 1.5 days

Risk assessment and recommended mitigation measures associated to lifting: manual and mechanical, Work at height/over water/diving, use of tools, radioactive sources, electrical equipment, confined space works, hydrostatic testing, welding/grinding/cutting.

SECURITY — 0.5 day

Security management: definition, site management with regards to external events (robbery, kidnapping, data), security control and technologies.

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Training - Upstream Project Construction Works Supervision

CONSUP-EN-P | Face-to-face only | 5 days

This course provides transverse experience, know-how and soft skills that are essential to construction management positions

Level
Skilled

Public
Managers, engineers, plant management staff (construction, maintenance, operation) and contractor management staff (engineering contractors and constructors) in charge of upstream Oil & Gas projects

Objectives
Attendees will be able to implement the following skills:

- Apply proven practices within operational situations
- Define a suitable organization and execution plan, adapted to the plant requirements
- Manage critical interfaces with operational staff, at each step of the project implementation
- Identify and manage safety, health and environment issues during project design and execution

Pedagogical & technical resources
Photos and videos will be used to illustrate the issues

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CONSTRUCTION WORKS FRAMEWORK — 1 day

Roles and responsibilities of stakeholders in an Oil & Gas project.
Different stages of an Oil & Gas project.
Importance of preliminary stages.
Field modification works: responsibilities, constraints and challenges.
Working on operating facilities.
Roles and constraints of field operators.
Site organization, typical site construction manual.

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Construction contractor organization and relationship with it.

HSE ISSUES — 1 day

Typical construction risk analysis.
Organization of operations on the facilities.
Works supervision procedure.
SIMultaneous OPerationS (SIMOPS).
Work permits (instructions, procedure, audit).

WORK INSTRUCTIONS & QUALITY ISSUES — 1 day

Procedures to be enforced, their objectives, base principles and validation process.
Learning how to read the plans.
How to supervise quality of prefabricated and site works.
Quality control at supplier's premises.
Visiting a construction contractor.
Visit reports.

CONSTRUCTION SUPERVISION — 1 day

Preparation and organization of successful meetings with the contractor.
Basic notions of welding (principles and used techniques).
Follow-up of works for each discipline (piping, E&I and mechanical).
Pre-commissioning and commissioning.
Planning, cost and schedule control.

RELATIONSHIPS & TEAM WORK — 1 day

Roles and responsibilities of team leaders (leadership and relationships with the other stakeholders).
Qualification, knowledge and aptitude.
Reflexes, rules and obligations.
Non-conflictual interpersonal relationships.
Ethics.
Feedback and lessons learned.
Proper communication.
Use of emails.

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Training - Corrosion and Risk Based Inspection

CORBIE-EN-P | Face-to-face only | 5 days

This course provides a practical knowledge of pressure equipment and piping corrosion, and Inspection strategy based on risk analysis

Level
Skilled

Public
Experienced engineers, managers and technical staff involved in safe operation and integrity of pressure equipment installed in refineries, chemical and petrochemical plants

Objectives
Attendees will be able to implement the following skills:

- Identify operating windows beyond which corrosion phenomenon happen
- Describe the RBI methodology for a petrochemical or chemical plant
- Determine the probability and consequence of a failure
- Set up a suitable inspection plan

Pedagogical & technical resources

- Active teaching methods are used to promote a pooling of experience, under the lead of inspection specialist
- Actual accidents in refineries and chemical plants are analyzed to be aware of the risks
- Wide use of samples, videos and pictures to develop practical case studies for pressure equipment such as piping, heat exchanger, reactor, distillation column, boiler, etc

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CORROSION IN OIL & GAS INDUSTRIES & PETROCHEMICAL PLANTS - API 571 — 1.5 days

Each type of corrosion is studied along with possible prevention for piping, drums, columns, heat exchangers, boilers and furnaces already in service, or during a new plant design.
Specific corrosion occurring in industrial units based on API 571:

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- Metallurgical deterioration: brittle fracture, chromium precipitation, creep, fatigue.
- Hydrogen induced cracking, high temperature hydrogen attack, high temperature sulfur corrosion, oxidation, flue gas corrosion, naphthenic acid corrosion, polythionic acid corrosion, caustic soda stress cracking, amines corrosion, CO2 corrosion.

Corrosion of alloys in chemical industry: corrosion by mineral acids, bases, nitrates, ammonia or chlorine
Many corrosion case studies observed in process industry units: identification of corrosion root cause and mitigation to apply.

CORROSION PREVENTION & INSPECTION - API 510 — 1 day

Material selection and detailed engineering design to avoid corrosion.
Identification of operating windows.
Corrosion control by means of sampling, use of corrosion coupons and probes.
Cathodic protection with sacrificial anodes or imposed current.
Anticorrosion coatings and cladding.
Basic non-destructive testing: PT, MT, RT, UT and advanced non-destructive testing: phased array...

RISK BASED INSPECTION - API 581 — 1 day

Collect Design data and inspection data.
Select Corrosion loops for each PID.
Calculate probability of failure based on damage factor - Quantitative approach using API581 workflow.
Calculate consequence of failure - Quantitative and semi quantitative approach using API581 workflow.
Evaluate the overall risk on API matrix.
Define inspection strategy: mitigations actions or inspection scheduling extension.
Overview of available commercial software “RBEYE”.
Example of industrial RBI strategy implemented.
RBI semi quantitative approach based on simplified Excel spreadsheet.

APPLICATION OF THE RBI METHOD WITH MINI-PROJECTS CASE STUDIES — 1.5 days

Application of API 581 RBI method using mini projects - Case studies as teamwork:

- Select the appropriate corrosion loops and pressure vessels.
- Identify the degradation.
- Apply API 581 workflow to define the probability of failure, the consequence of failure.
- Analyze the risk and propose risk mitigations with more efficient Non Destructive Testing or adjust inspection frequency.

Apply RBI semi quantitative approach based on simplified excel spreadsheet and compare the 2 methods.
Each group presents its RBI analysis and conclusion.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Corrosion Prevention in Oil and Gas Production

CORR-EN-P | Face-to-face only | 5 days

This course provides in-depth understanding of corrosion phenomena specific to Oil & Gas production facilities and the main corrosion prevention techniques

Level

Knowledge

Public

Engineers and technicians working for the design, construction, operation, inspection or maintenance of Oil & Gas upstream production facilities

Objectives

Attendees will be able to implement the following skills:

- List the main characteristics and types of corrosion of metallic materials used in the Oil & Gas industries
- Describe the means of protection against each type of corrosion
- Select the most appropriated material for a given Oil & Gas application
- Explain the available ways of monitoring the state of corrosion of a metallic equipment

Pedagogical & technical resources

- Highly interactive teaching by experienced lecturers
- Several applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DEFINITION & MECHANISMS OF CORROSION — 1 day

Ferrous and non-ferrous metals: structure, composition, mechanical properties, metallurgy.
Definitions: wet corrosion, dry corrosion.
Cost of corrosion: financial and human.
Basics: electrochemical mechanisms, polarization, passivity, diffusion.

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COMMON TYPES OF CORROSION — 1 day

Analysis of the origin and development process of each form of corrosion and possible methods of prevention.
Forms of corrosion studied: uniform, galvanic, pitting, crevice, inter-granular, selective, corrosion-erosion and cavitation, stress corrosion, contact corrosion.

TYPES OF CORROSION ENCOUNTERED IN THE OIL & GAS INDUSTRY — 1 day

Each type of corrosion is studied together with possible remedial treatment:

- Corrosion by hydrogen sulfide.
- Corrosion by carbon dioxide.
- Corrosion due to oxygen in aqueous environment.
- Caustic soda corrosion.
- Corrosion in acid gas treatment units.
- Atmospheric corrosion or corrosion by sea water.
- Corrosion by mercury.
- Corrosion of reinforced concrete.

Case studies of corrosion observed in Oil & Gas installations: identification of the types of corrosion and suggested remedial treatments.

CORROSION PREVENTION — 1 day

Design of equipment aimed at avoiding certain types of corrosion.
Choice of the materials best suited to the environment.
Corrosion inhibitors, filming, passivating, neutralizing, absorbing the oxygen.
Anticorrosion coatings and systems.
Cathodic protection with sacrificial anodes or imposed current.
Methodology and control of processes. Control of process and environmental parameters.
Analysis of the means of prevention implemented in the units.

CORROSION MONITORING - FUNDAMENTALS OF INSPECTION — 1 day

Corrosion coupons and probes.
Non-destructive testing of the state of walls.
Corrosion monitoring plan.
Fundamentals of inspection.

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Training - IWCF Well Intervention and Pressure Control - Level 2

CP2-EN-P | Face-to-face only | 5 days

IWCF Well Intervention and Pressure Control Level 2 training learn to safely intervene on live wells and manage well control incidents during wireline, coiled tubing, snubbing, and well completion operations

Level

Knowledge

Public

Personnel who have had no training in well control or for young recruits who will be involved with well intervention operations: wire-line, coiled tubing, snubbing, workover

Objectives

Attendees will be able to implement the following skills:

- Understand the impact and consequences of a blowout
- Identify the function of each completion equipment, recognize the safety barriers and understand the behavior of a producing well
- Learn the various tools used during well interventions and understand the procedures applied during wireline, coiled tubing, snubbing, workover operations
- Be aware of the methods used to control well pressure
- To be certified IWCF Level 2

Pedagogical & technical resources

- Course material (PPT, PDF)
- Exercise book
- Certified IWCF instructor

Assessment of achievements

IWCF Level 2 examination tests

Prerequisites

A minimum of 10 working days is required by IWCF to validate the registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC PRINCIPLES & WELL FUNDAMENTALS — 0.5 day

Type of well effluents (heavy oil, oil, gas).
Hydrostatic and hydrodynamic pressures.
Specific gravities, densities, pressure gradient.
Over-balance/under-balance.

© IFPTraining

Pore pressure, frac pressure.

PRESSURE CONTROL APPLIED TO COMPLETION & WELL INTERVENTION — 1.5 days

Safety barriers, pressure tests.
Well calculation (pressure, volume, pumping time, pressure to balance at the circulating device.
Shut in procedures.
Kill methods: direct or reverse circulation, bull heading, lubricate and bleed.
Specific problems linked to producing wells: losses, plugging, migration, hydrates, H2S and CO2.

COMPLETION EQUIPMENT — 0.5 day

Different types of completion.
Downhole equipment (packers, safety valves), nipples, side pocket mandrels, tubing (sizes, grades and connections), Xmas tree, etc.

DIFFERENT TYPES OF INTERVENTION WITH THEIR RESPECTIVE EQUIPMENT — 2 days

Wire line intervention (optional)

- Safety barriers and specific equipment.
- Rigging up and pressure tests surface pressure control equipment.
- Slick line: specific equipment (BOP, lubricator, stuffing box, cable cutter valve...).
- Braided line, e-line: specific equipment (twin BOP, grease injection system, pack-off system, tool-trap, tool-catcher...).

Coiled tubing (optional)

- Barriers and specific equipment (strippers, BOP...).
- Rigging up and pressure tests surface pressure control equipment.

Snubbing (optional)

- Barriers and specific equipment (strippers, annular BOP, stripping rams, safety rams...).
- Rigging up and pressure tests surface pressure control equipment.

IWCF CERTIFICATION — 0.5 day

Test on completion equipment (compulsory).
Test on completion operations (compulsory).
Test on Wire Line operations (optional).
Test on Coiled Tubing operations (optional).
Test on Snubbing operations (optional).
Note: 1, 2 or 3 options has to be selected in addition to the compulsory tests.

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Training - IWCF Well Intervention and Pressure Control - Level 3 or 4

CP3&4-EN-D | Distance only | 5 days

The IWCF Well Intervention and Pressure Control Level 3 & 4 training equips professionals to effectively intervene on live wells and manage well control incidents during wireline, coiled tubing, snubbing, and subsea well intervention operations

Level

Skilled

Public

All personnel concerned with well intervention operations (wire-line, coiled tubing, snubbing, workover) involved in delivering safe operations: engineers, supervisors, operators, etc

Objectives

Attendees will be able to implement the following skills:

- comply with the well integrity requirements & know the safety barrier principles
- know all the components of completion equipment and understand the behavior of a producing well
- apply the methods used to control well pressure
- learn procedures and equipment used in wireline, coiled tubing, snubbing and work-over
- obtain the level 3 or 4 IWCF certification

Pedagogical & technical resources

- Course material (PPT, PDF, Word)
- Exercise book
- Certified IWCF instructor

Assessment of achievements

IWCF Level 3 or 4 examination tests

Prerequisites

The Certification Level 2 is recommended for a first IWCF certification
A minimum of 10 working days is required by IWCF to validate the registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC PRINCIPLES & WELL FUNDAMENTALS — 0.5 day

Type of well effluents (heavy oil, oil, gas).
Hydrostatic and hydrodynamic pressures.
Specific gravities, densities, pressure gradient.
Over-balance/under-balance.

© IFPTraining

Pore pressure, frac pressure.

PRESSURE CONTROL APPLIED TO COMPLETION & WELL INTERVENTION — 1.5 days

Safety barriers, pressure tests.
Well calculation: pressure, volume, pumping time, pressure to balance at the circulating device.
Shut in procedures.
Kill methods: direct or reverse circulation, bull heading, lubricate and bleed.
Specific problems linked to producing wells: losses, plugging, migration, hydrates, H2S and CO2.
Responsibilities and decision-making.

COMPLETION EQUIPMENT — 0.5 day

Different types of completion.
Downhole equipment as: packers, safety valves SCSSSV, nipples, side pocket mandrels, tubing (sizes, grades and connections), Xmas tree, etc.

DIFFERENT TYPES OF INTERVENTION WITH THEIR RESPECTIVE EQUIPMENT — 2 days

Wire line intervention (optional)

- Safety barriers and specific equipment.
- Rigging up and pressure tests surface pressure control equipment.
- Slick line: specific equipment (BOP, lubricator, stuffing box, cable cutter valve...).
- Braided line, e-line: specific equipment (twin BOP, grease injection system, pack-off system, tool trap, tool catcher...).
- Problems during the interventions, interpretation and decision (shut in).

Coiled tubing (optional)

- Barriers and specific equipment (strippers, BOP...).
- Rigging up and pressure tests surface pressure control equipment.
- Problems during the interventions, interpretation and decision (shut in).

Snubbing (optional)

- Barriers and specific equipment (strippers, BOP, stripping rams, safety rams...).
- Rigging up and pressure tests surface pressure control equipment.
- Problems during the interventions, interpretation and decision (shut in).

IWCF CERTIFICATION — 0.5 day

Test on completion operations (compulsory).
Test on completion equipment (compulsory).
Test on Wire Line operations (optional).
Test on Coiled Tubing operations (optional).
Test on Snubbing operations (optional).
Note: 1, 2 or 3 options have to be selected in addition to the compulsory tests.

Sessions

Classe virtuelle - From 07/19/2027 to 07/23/2027 — **4080 €/HT**

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Training - IWCF Well Intervention and Pressure Control - Level 3 or 4

CP3&4-EN-P

Face-to-face only

5 days

The IWCF Well Intervention and Pressure Control Level 3 & 4 training equips professionals to effectively intervene on live wells and manage well control incidents during wireline, coiled tubing, snubbing, and subsea well intervention operations

Level

Skilled

Public

All personnel concerned with well intervention operations (wire-line, coiled tubing, snubbing, workover) involved in delivering safe operations: engineers, supervisors, operators, etc

Objectives

Attendees will be able to implement the following skills:

- comply with the well integrity requirements & know the safety barrier principles
- know all the components of completion equipment and understand the behavior of a producing well
- apply the methods used to control well pressure
- learn procedures and equipment used in wireline, coiled tubing, snubbing and work-over
- obtain the level 3 or 4 IWCF certification

Pedagogical & technical resources

- Course material (PPT, PDF, Word)
- Exercise book
- Certified IWCF instructor

Assessment of achievements

IWCF Level 3 or 4 examination tests

Prerequisites

The Certification Level 2 is recommended for a first IWCF certification
A minimum of 10 working days is required by IWCF to validate the registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC PRINCIPLES & WELL FUNDAMENTALS — 0.5 day

Type of well effluents (heavy oil, oil, gas).
Hydrostatic and hydrodynamic pressures.
Specific gravities, densities, pressure gradient.
Over-balance/under-balance.

© IFPTraining

Pore pressure, frac pressure.

PRESSURE CONTROL APPLIED TO COMPLETION & WELL INTERVENTION — 1.5 days

Safety barriers, pressure tests.
Well calculation: pressure, volume, pumping time, pressure to balance at the circulating device.
Shut in procedures.
Kill methods: direct or reverse circulation, bull heading, lubricate and bleed.
Specific problems linked to producing wells: losses, plugging, migration, hydrates, H2S and CO2.
Responsibilities and decision-making.

COMPLETION EQUIPMENT — 0.5 day

Different types of completion.
Downhole equipment as: packers, safety valves SCSSSV, nipples, side pocket mandrels, tubing (sizes, grades and connections), Xmas tree, etc.

DIFFERENT TYPES OF INTERVENTION WITH THEIR RESPECTIVE EQUIPMENT — 2 days

Wire line intervention (optional)

- Safety barriers and specific equipment.
- Rigging up and pressure tests surface pressure control equipment.
- Slick line: specific equipment (BOP, lubricator, stuffing box, cable cutter valve...).
- Braided line, e-line: specific equipment (twin BOP, grease injection system, pack-off system, tool trap, tool catcher...).
- Problems during the interventions, interpretation and decision (shut in).

Coiled tubing (optional)

- Barriers and specific equipment (strippers, BOP...).
- Rigging up and pressure tests surface pressure control equipment.
- Problems during the interventions, interpretation and decision (shut in).

Snubbing (optional)

- Barriers and specific equipment (strippers, BOP, stripping rams, safety rams...).
- Rigging up and pressure tests surface pressure control equipment.
- Problems during the interventions, interpretation and decision (shut in).

IWCF CERTIFICATION — 0.5 day

Test on completion operations (compulsory).
Test on completion equipment (compulsory).
Test on Wire Line operations (optional).
Test on Coiled Tubing operations (optional).
Test on Snubbing operations (optional).
Note: 1, 2 or 3 options have to be selected in addition to the compulsory tests.

Sessions

Pau - From 07/20/2026 to 07/24/2026	**3990 €/HT**
Pau - From 09/14/2026 to 09/18/2026	**3990 €/HT**
Pau - From 11/02/2026 to 11/06/2026	**3990 €/HT**
Pau - From 04/05/2027 to 04/09/2027	**4080 €/HT**

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Pau -	From 06/21/2027 to 06/25/2027	**4080 €/HT**
Pau -	From 09/13/2027 to 09/17/2027	**4080 €/HT**
Pau -	From 11/01/2027 to 11/05/2027	**4080 €/HT**

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Training - Production Sharing and Joint Operating Agreements

CPA-EN-P | Face-to-face only | 3 days

To provide participants with an in-depth understanding of the concepts, mechanisms and articles of Production Sharing and Joint Operating Agreement

Level

Skilled

Public

Exploration and production professionals, legal personnel entering the E&P scene, service companies managers and government employees

Objectives

Attendees will be able to implement the following skills:

- Identify the main concepts, principles and articles of a Production Sharing Agreement which contractually binds petroleum companies with a ministry and/or a state oil company
- Evaluate the management of Petroleum Exploration and Production partnerships to successfully find and produce hydrocarbons
- Discuss the practical aspect of contracts: identifying key issues, understanding constraints and deadlines, getting familiar with the document

Pedagogical & technical resources

- Case studies
- Exercises on Production Sharing Contracts
- Analysis of Joint Operating Agreements
- Examples of petroleum laws and fiscal regimes around the world

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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PRODUCTION SHARING AGREEMENTS (PSA) — 1 day

Introduction

- Origins, concept and scope of the PSA.
- Comparison of PSA to other contracts.
- Contents and structure of a typical PSA.

PSA mechanisms

- Cost oil, profit oil split, “Government Take”.
- Bonuses, first tranche petroleum, tax holiday, cost recovery ceilings, uplifts, investment credits, government “back-in”.
- Typical PSA cash flow forecast chart.

Case study: comparative reading of a mining law and a PSC.

MAIN ARTICLES OF AN E&P CONTRACT — 1 day

General structure of patrimonial contracts.
Exploration phase: duration, commitments, surrender, data and information, etc.
Appraisal phase: work program, gas provisions, commerciality, etc.
Development phase: financing, State participation, budgets and development plans, unitization, etc.
Production phase: work conduct and supervision, audit and accounting, financing, taxation, transportation and marketing of production, hydrocarbon price determination, etc.
General terms & conditions: title transfer, sole risk, force majeure, local content, environmental protection, governing law and dispute resolution.
Conclusion: Recent trends in oil taxation and patrimonial contracts.
Real-life examples from the news.

JOINT OPERATING AGREEMENTS (JOA) — 1 day

Introduction:

- The purpose of the joint ventures and use of a JOA.
- The relationship of the JOA to other oil industry contracts.
- Structure of a JOA, definitions and terminologies.

The operator: appointment, rights and duties, liabilities, responsibilities, resignation, removal.
The partners:

- Rights and duties, liabilities, responsibilities.
- The operating committee and sub committees.
- Establishment, powers and duties, notices, voting procedures, impact of voting, pass-mark.

Case study: discussing the main articles of a selected Joint Operating Agreement (JOA).

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Training - Coiled Tubing and Nitrogen Operations in Completion and Workover

CTA-EN-P | Face-to-face only | 5 days

This course provides a comprehensive, practical knowledge of coiled tubing equipment and operations on a producing well

Level
Skilled

Public
Engineers, supervisors, technicians from operating or service companies, involved in completion, workover and stimulation

Objectives
Attendees will be able to implement the following skills:

- understand the main coiled tubing unit equipment, pipe characteristics & behavior
- define the need to use nitrogen unit, its applications & characteristics
- learn about coiled tubing applications in completion and workover
- asses the corresponding equipment for each application
- design coiled tubing programs (wellbore treatment, logging, cementing, lifting and drilling)

Pedagogical & technical resources
Exercises - Animations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC DATA — 0.25 day

Importance of nitrogen in stimulation and workover.
Importance of coiled tubing in completion and workover.

NITROGEN - NITRIFIED ACID - FOAMED ACID — 1 day

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Nitrogen (properties, basic formula for design).
Specifications for nitrogen storage and pumping equipment.
Two-phase fluids and foams (properties, chart and tables for design, difference between foam and two phase fluids), diverting effect of foamed fluid.
Stimulation methodology, flow back procedure.

COILED TUBING EQUIPMENT (TECHNOLOGY, DIMENSION, WEIGHT) 0.75 day

Main components: reel, injector, BOP and related equipment.
Auxiliary equipment: crane, pumping equipment, etc.
Downhole tools: connectors, safety equipment, circulating tools, downhole motor, fishing tools, inflatable packers, etc.
Guide for safe equipment rig-up.

PIPE CHARACTERISTICS & BEHAVIOR 0.5 day

Geometric and mechanical properties: geometry, metallurgy, performance, characteristic curve.
Tubing behavior (at surface, in hole): fatigue, buckling, tension and pressure limits (tubing force analysis, model for operation design).
Measuring and recording of operating parameters.

COILED TUBING APPLICATIONS 2 days

Kick off with nitrogen, underbalance perforating.
Well clean out (fill removal, wax and hydrate removal).
Sand control.
Matrix treatment: acid, solvent.
Other applications: CT assisted DST, conveyed tool operations in high deviated well, use as producing, gas lift or chemical injection string, fishing, underreaming, drilling.
Statistics, economy, areas for future development.

CEMENTING OPERATIONS WITH NITROGEN OR COILED TUBING 0.5 day

Foamed cement: definition, use (primary cementing, squeeze).
Cementing through coiled tubing: cement plug, squeeze (squeeze slurry characteristics, job design, key-points).

Sessions

Pau - From 05/24/2027 to 05/28/2027 **4420 €/HT**

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Training - Cybersecurity for Managers

CYBRMNG-EN-P | **Face-to-face only** | **1 day**

Cybersecurity is nowadays affecting every aspect of business. Most managers, however, are not IT experts and are often left at the mercy of the IT department. The course “Cybersecurity for Managers” aims to fill this gap by making you into a solid sparring partner for the IT department

Level

Awareness

Public

Management level

Objectives

Attendees will be able to implement the following skills:

- What are the essential questions I should ask my IT team ?

Pedagogical & technical resources

Virtual classroom ended by a business case

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1

Introduction cybersecurity.
Why do hackers hack?
Overview of common cyber-attacks.

MODULE 2

Cyber security governance.
Management responsibilities.
How much security is enough?

MODULE 3

Taking action.

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Asking the right questions.
Personal cyber hygiene.

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Training - Cybersecurity for O&G Professionals

CYBROGP-EN-P | **Face-to-face only** | **1 day**

Cybersecurity is nowadays affecting every aspect of business. However, most O&G professionals do not have much IT experience. The course “Cybersecurity for O&G Professionals” aims at emphasizing the role of employees as first-line defenders of company information, and at recognizing most common attack tactics. The course will also give some keys to ensure protection of company computer at home and personal devices (e.g. mobile phones)

Level

Awareness

Public

Anyone who works with computers, regardless of previous IT experience

Objectives

Attendees will be able to implement the following skills:

- Participants will be (more) aware of the important role that professionals play as a first-line defense against cyber attacks, and will be able to effectively defend themselves against possible attacks.

Pedagogical & technical resources

Virtual classroom ended by a business case

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CYBERSECURITY

Introduction to cybersecurity.
The role of employees as company data first-line defenders.
Who is the weakest link? Are you?

MOST COMMON CYBERATTACKS

Review of common attack tactics.
How to recognize them?
E.g. phishing, e-mail scams, WhatsApp abuses, modern attacks.

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PROTECTION

Risks of working from home.
Protecting personal devices such as mobile phones and tablets.
Protecting your privacy online.
Cyber hygiene.

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Training - Introduction to Data Science and Analytics for O&G Professionals

DABASIC-EN-D | **Distance only** | **1 day**

This course aims at introducing data science and analytics, which aims at extracting knowledge from raw data to build data-driven models. It will introduce the workflow involving data exploration, preprocessing and machine learning modeling

Level

Awareness

Public

O&G professionals getting involves in Data Analytics and Machine Learning projects

Objectives

Attendees will be able to implement the following skills:

- Understand the data science and analytics objectives (data science, analytics and machine learning)

Pedagogical & technical resources

- Participative lecturing
- Case studies
- Team work/mini-project

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO DATA SCIENCE & ANALYTICS

Concept of data science.
Data analytics.

DIFFERENT LEVELS FOR DATA ANALYTICS

Descriptive.
Diagnostic.

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Predictive.
Prescriptive.
Cognitive (AI).

DATA ANALYTICS PRINCIPLES

Data statistics (univariate, bivariate, distributions).
Data ranking (correlation matrix, principal component analysis, fuzzy logic).

DATA ANALYTICS WORKFLOW

Exploratory data analysis.
Data preprocessing.
Machine learning models.

SOME O&G APPLICATIONS

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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This training course is offered under the **Alliance4Training** brand

Training - Crude Oil and Vacuum Distillation

DADSV-EN-P | **Face-to-face only** | **5 days**

This course provides a deeper understanding of the operating and monitoring of atmospheric and vacuum distillation units

Level

Skilled

Public

Engineers, senior operation personnel and technical supervisors interested or involved in the operation, optimization and monitoring of crude oil atmospheric distillation and residue vacuum distillation units

Objectives

Attendees will be able to implement the following skills:

- Give the meaning of the operating parameters of the atmospheric and vacuum distillation units
- Identify the controls and adjustment variables of the columns with multiple racks
- Specify the operational optimization points of these units
- Explain the logic of protecting this type of unit in the event of an incident

Pedagogical & technical resources

- Applications, teamwork, case studies and interactive workshops based on typical real situations
- Possible use of a generic dynamic simulator for crude oil distillation unit operation issues
- The duration and content of the training course can be customized to the needs of the client site and the profile of the participants
- Possible contribution of experienced staff reporting his industrial experience of the operation on a daily basis
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

IMPACT OF CRUDE OIL QUALITY ON PRODUCTS — 0.5 day

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Tuning of the volatility of petroleum fractions in view of their end-use: constraints and flexibility of cut points; principal problems related to quality.
Crude oils: properties (TBP analysis), product yields, related margins.
Main schemes for crude oil fractionation.

OPERATING CONDITIONS OF AN ATMOSPHERIC & VACUUM DISTILLATION UNITS — 2 days

Material balance: cut points, product characteristics, separation quality, fractionation capability.
Top condensation and pressure in the column - Partial pressures.
Feed vaporization: inlet temperature, overflash.
Product side stripping.
Heat balance of the column - Pumparounds and heat integration.
Modern internals for crude oil distillation column.

DESALTING & CORROSION CONTROL — 0.5 day

Corrosion by sulfur, naphthenic acids and mineral salts.
Crude oil desalting: purpose, functioning of the desalter, operating variables and troubleshooting.
Downstream neutralizing treatment: purpose, advantages and drawbacks.
Controlling corrosion at the head of topping column and anticorrosion techniques.

SAFETY & ENVIRONMENTAL CONCERNS — 0.5 day

Process risks: H2S, inflammability, auto-inflammation.
Risks related to main equipment: furnace, pumps, vacuum system.
Heat recovery optimization and energy consumption.
Efficient and low energy consumption vacuum equipment (steam ejector vs. liquid ring pump).

PROCESS CONTROL, OPERATION & TROUBLESHOOTING OF MULTI-DRAW-OFF COLUMNS — 1 day

Different control systems in atmospheric and vacuum distillation columns, using flowrate, level or temperature control.
Cut point control: modification of flowrate of a cut and consequences on the column.
Impact of the preflash on the operation of the furnace and the atmospheric column.
Separation control: tuning of the separation selectivity, consequences on the column and on the heat recovery system.
Influence of pressure and pressure control.
Case studies on overall control setup of these two distillation columns and disturbances.
Maximizing the performances of the unit under constraints or limit conditions.
Start-up - Shutdown - Troubleshooting.

DISTURBANCES & TROUBLESHOOTING — 0.5 day

Case studies (in groups) related to disturbances and incidents; detection, consequences and corrective actions:

- Stripping shutdown.
- Failure of one pumparound pump, of the furnace.
- Loss of part of the feed, etc.

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Training - Data Science for E&P Operations

DAEP-EN-D | **Distance only** | **10 days**

The Data Science for E&P operations training will give an understanding of data analytics to all O&G professionals willing to understand how data science, and machine learning in particular, have become more and more common in the industry

Level

Awareness

Public

Professionals from all O&G disciplines who plan to have responsibilities in the data analytics domain

Objectives

Attendees will be able to implement the following skills:

- Learn the main concepts of data science
- Understand the machine learning/artificial intelligence concepts
- Be able to build a basic python program
- Learn about ML applications for O&G industry
- Be able to interact with data scientists/ITs involved in ML applications

Pedagogical & technical resources

Interactive lectures, case studies and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO DATA SCIENCE & ANALYTICS FOR O&G PROFESSIONALS

MACHINE LEARNING CONCEPTS

PYTHON SCRIPTING

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TEXT ANALYSIS USING MACHINE LEARNING

OBJECT DETECTION

ML MODEL EVALUATION/VALIDATION

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Training - Python Scripting

DAPYTH-EN-D | **Distance only** | **1 day**

Python is a user-friendly programming language, which is commonly used in in artificial intelligence projects and machine learning projects. It includes many modules for creating graphical user interfaces, connecting to relational databases..., which makes it one of the main software currently used in data science projects today

Level

Awareness

Public

Graduate from all technical disciplines. Tailored to the non-programmer

Objectives

Attendees will be able to implement the following skills:

- Acquire the basics for scripting in Python language

Pedagogical & technical resources

- Participative lecturing
- Case studies
- Team work/mini-project

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO PYTHON

Discover Python basic syntax (Python string syntax; comments, numbers, and variables rules and functions (Python rules; string functions) objects, properties and methods; looping; write to a file - Have scripts create a text file (writing to a text file; file workflow).

CREATE PYTHON SCRIPTING FOR GIS

Create a script tool for geoprocessing; document the tool.

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MINI-PROJECT

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Training - National Data Repositories and Data Rooms

DATROOM-EN-D | **Distance only** | **2 days**

Promoting subsurface assets in a very competitive market is a very challenging task. A good data collection, correctly managed over time, is the best instrument for authorities and national agencies not only to illustrate the attractivity of their acreage but also to organize a transparent competition between potential licensees for the benefit of the nations

Level

Awareness

Public

Authorities technicians and engineers in charge of designing, implementing or reviewing a data governance in order to improve the attractiveness of subsurface data assets

Objectives

Attendees will be able to implement the following skills:

- Design and implement a data governance for NDRs and related activities
- Organize attractive, efficient and securized data rooms

Pedagogical & technical resources

Interactive lectures, case studies and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION

Data is an asset. Importance of data in the exploration and production business.
Data governance - Who is the data owner?
Petroleum project life cycle and data life cycle.
Summary of main geoscience data formats.
Role of the data rooms.

COLLECTING EXPLORATION & PRODUCTION DATA

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Comparison of the data collection guidelines in various North Sea countries. Yellow book and blue book.
Automatizing data exchange, the PRODML standard.
OSDU – Open Subsurface Data Universe.

MANAGING PHYSICAL DATA: CORES, TAPES & PAPER ARCHIVES

Core storage and core digitalization.
Remastering seismic tapes.
Scanning paper archives. OCR.

FROM DOCUMENTS TO DATA

Structured and unstructured data.
Several style of data storage: relational, graph and NoSQL databases.
Metadata, pull and push data access.
Data mining, deterministic and stochastic methods.
Document and content management systems.

DATA QUALITY FOR DATA ROOMS

The lean data management approach.
The 6-sigma data management approach.
The data quality criteria.
A quantitative approach of the data quality management.

CYBER SECURITY - DATA SECURITY MANAGEMENT FOR DATA ROOMS

Our data are at risk!
Prevention strategy and tactics.
CRUDE matrix and confidentiality management.
Data retention management.

ORGANIZING EFFICIENT DATA ROOMS

The role of the data rooms.
Physical and virtual data room.
Data publication on the web, market place.

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Training - Data Base Set Up and Evaluation

DBASE-EN-P | **Face-to-face only** | **5 days**

O&G professionals are getting more and more involved in data management. Setting up a fit-for-purpose database is often a challenge. Based on DAMA book of knowledge, the Data Base Set Up & Evaluation training aims at focusing on understanding data management needs and organizing an adequate data base in a given O&G organization

Level

Awareness

Public

Data managers, information managers, technical managers, technologists, geoscientists, Reservoir Engineers, involved in organizing data bases or assessing them (e.g. data rooms)

Objectives

Attendees will be able to implement the following skills:

- Set up a data governance plan within their organization
- Identify and select the most appropriate data base architecture, depending on available data
- Define data security requirements
- Set up data quality criteria

Pedagogical & technical resources

Interactive lectures ended by a business case

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

O&G DATA GOVERNANCE — 0.5 day

Data management, as per DAMA.
Data governance.
Responsibility sharing for efficient Data Management; RACI matrix.

DATA ARCHITECTURE & DATA OPERATIONS — 0.5 day

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ER diagrams, SQL, NoSQL, graph databases.

PHP & SQL — 1 day

Hands-on exercise on PHP and SQL.

DATA INTEGRATION — 0.25 day

OLAP and OLTP.
Data warehousing, ERP and BI products.
Data virtualization.

DATA RETENTION & SECURITY — 0.75 day

Back-up; archives.
Legal constraints: SOX, GDPR.
Common attacks and mitigations.
ISO 27001.

DATA QUALITY — 0.5 day

End users expectations.
Quality criteria.
Quantitative approach.

DATA MANAGEMENT SKILLS — 0.5 day

Data Management jobs.
Skills assessment in PPDM and CDA.

MINI-PROJECT — 1 day

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Training - Exploration and Production Overview

DCOUVEP-EN-P | Face-to-face only | 5 days

This training aims to give a complete overview of the main activities of Exploration & Production through its global process, by going through the key stages of the valorization of a hydrocarbon field. You will discover the fundamentals and vocabulary of Exploration & Production techniques: geosciences, reservoir engineering (enhanced recovery, unconventional resources, CO2 capture and storage), drilling, completion, production, projects, decision-making process, economic aspects and patrimonial contracts

Level

Awareness

Public

All professionals in contact with the oil industry: directors, ministries, executives, technicians, support trades... wishing to acquire the basic knowledge of oil exploration & production techniques and the associated vocabulary in order to interact effectively with specialists in different disciplines

Objectives

Attendees will be able to implement the following skills:

- Explain the various phases of Oil & Gas development projects
- Identify the contribution of all experts and technologies involved through a field development project
- Understand the E&P value chain from prospect to market and associated contractual framework
- Describe techniques involved in field development in order to efficiently interact with technical teams

Pedagogical & technical resources

- Highly interactive course delivered by experts of the E&P industry
- Numerous examples and feedbacks from the industry. Numerous videos and animations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO THE OIL & GAS INDUSTRY — 0.25 day

Introduction to the energy business: energy resources; energy demand and supply.

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Scope of the Oil & Gas industry:

- Context: producer and consumer countries; national/ independent/ international oil companies; services companies; international organizations.

Risks related to the Oil & Gas industry.

GEOSCIENCES & RESERVOIR ENGINEERING 1.25 days

Introduction to petroleum geology:

- Geodynamics of the earth. Sedimentary basins. Structural deformations (folds & faults).
- Clastic and carbonate depositional environments and reservoirs.
- Elements and processes of the petroleum system (source, reservoir, seal, traps).

Subsurface models, inputs data and concepts:

- Seismic data gathering, processing and interpretation.
- Well data acquisition and analysis.
- Formation evaluation and sampling (logs and cores).

Reservoir characterization and modeling:

- Data integration; introduction to reservoir modeling.
- Management of subsurface uncertainties.
- Volumetrics (in-place hydrocarbon estimation).

Subsurface Development Options: reservoir engineering:

- Field development planning.
- Drainage mechanisms: introduction to EOR and storage.
- Different types of reservoir effluents and their behavior.
- Unconventional resources:
- Introduction to unconventional developments.
- Non-conventional resources and their extraction techniques.
- Environmental aspects.

FIELD OPERATIONS & DEVELOPMENT 2.25 days

Drilling:

- Main functions of drilling rigs: lifting, rotating, pumping, power and safety.
- Types of drilling rigs.
- Well architecture.
- Well construction.
- Drilling equipment: bits, drilling string, drilling fluids...
- Drilling techniques: casing, cementing, directional drilling, well testing, instrumentation.
- Well control - BOPs (safety devices: wellheads in drilling).
- Sampling: measurements during drilling (LWD), coring, mud-logging and wireline, fluid sampling.
- Specificities of offshore equipment.

Well completion:

- Reservoir/wellbore interface; basics of well performance; stimulation; artificial lift techniques.
- Well equipment and well intervention.

Field architecture:

- Surface development options; study of various existing fields.
- Case of offshore developments.

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Surface facilities:

- Well effluent gathering network.
- Oil, gas and water processing.
- Metering, storage and export.
- Oil & Gas transport through pipelines and tankers.
- Offshore installations: from shallow water to deep offshore technology.

HSE in field development:

- Main hazards in hydrocarbon exploration & production operations.
- Overview of safety engineering and environmental impact assessment studies throughout Oil & Gas project life cycle.

OIL & GAS FIELD DEVELOPMENT PROJECTS: DECISION MAKING PROCESS, ECONOMICS & LEGAL FRAMEWORK — 1 day

Legal framework in E&P: oil contracts and principle of the oil rent sharing.
Project profitability evaluation:

- Oil & Gas project economics and financial performance indicators.
- Reserve evaluation. Impact of subsurface uncertainty on project economics.

Field development process:

- Decision making process: preliminary studies. Conceptual studies. Pre-project studies.
- Execution phases: basic engineering or FEED. Detailed engineering. Procurement. Construction. Commissioning.

Technical service contracts.
Project control:

- Scheduling and planning control.
- Cost estimation and control.
- Decommissioning.

SERIOUS GAME: OIL FIELD DEVELOPMENT CYCLE — 0.25 day

Sessions

Pau - From 09/07/2026 to 09/11/2026	**4320 €/HT**
Rueil-Malmaison - From 11/30/2026 to 12/04/2026	**4320 €/HT**
Pau - From 02/15/2027 to 02/19/2027	**4420 €/HT**
Rueil-Malmaison - From 05/24/2027 to 05/28/2027	**4420 €/HT**
Pau - From 09/06/2027 to 09/10/2027	**4420 €/HT**
Rueil-Malmaison - From 11/29/2027 to 12/03/2027	**4420 €/HT**

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Training - Introduction to refining

DECRAF-EN-P | **Face-to-face only** | **2 days**

This training course provides simple technical information on refining processes

Level

Awareness

Public

Non-technical professionals (engineers, technicians) in the Oil & Gas industry or related sectors interested in the oil refining business

Objectives

Attendees will be able to implement the following skills:

- describe the principle of a manufacturing diagram of petroleum product, including the purpose of the main refining units
- analyze the main constraints and trends of the refining industry

Pedagogical & technical resources

- Various pedagogical activities (quizzes, interactive games, summaries) ensure interactivity with participants and help them memorize a typical refining diagram
- The content of the material can be adapted to suit the customer's needs
- A virtual tour of a refinery in enhanced reality allows participants to appreciate the scale of the equipment and units presented
- A glossary of the main technical terms used in refining enables rapid familiarization with the vocabulary of the sector

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CRUDE OILS & PETROLEUM PRODUCTS — 0.5 day

Main characteristics of commercial products, relation with their composition.
Environmental constraints and the emergence of biofuels in formulations.

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REFINING STEPS

1.5 days

Origins of crude oil, means of supply, overall properties.
Simple refining diagram: initial fractionation of crude oils, transformation processes according to refining criteria and blending of the bases obtained.
The role of the various refining units, their interdependence and the operating conditions of the main units: catalytic reforming, isomerization, hydrorefining, sulfur recovery, thermal and catalytic cracking.
Main product and process hazards.

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Training - Object Detection

DETECOB-EN-D | **Distance only** | **3 days**

Deep learning, a branch of artificial intelligence has recently provided some new approach to recognize objects (patterns) in images and videos. In the domain of Oil & Gas activities, this has a lot of applications like: seismic interpretation seismic attributes micro-paleontology petrography video surveillance The object detection has proven his efficiency in some domain to increase the O&G engineers capabilities, this training is about to explain by lecture and practical exercises the fundamentals of theses algorithms

Level

Awareness

Public

Geoscientists who have to work with data scientists to develop object detection tools, or for geoscientists who have to use object detection tools to reach their business objective. The notebook workshops are designed for people having or not a python experience, but some general knowledge of coding is required

Objectives

Attendees will be able to implement the following skills:

- Know about the various strategies offered by deep learning to detect objects
- Measure the accuracy of the models
- Understand the current limitation of object detection

Pedagogical & technical resources

This course can be delivered using in-person lectures or virtual classrooms. Each training module contains lectures, hands-on practices and/or case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DAY 1

INTRODUCTION

Problem statement.

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Machine learning versus deep learning.

CLASSIFICATION USING A CNN ALGORITHM

Neural network and CNN.
Classifying hand written numbers using a CNN:

- MNIST dataset.
- Building a LeNet5 notebook.
- Analyzing the benchmark, how to measure the performance of a model.

What does happen is the image dataset is more complex: classifying CIFAR-10 dataset.

DAY 2

THE R-CNN FAMILY ALGORITHMS

R-CNN.
Fast R-CNN.
Faster R-CNN.

THE YOLO APPROACH

UNBOXING YOLO, TESTING IT ON A VIDEO

Training a YOLO architecture.
Performance.

DAY 3

IMPROVING IMAGES WITH GAN - GENERATIVE ADVERSARIAL NETWORKS

How GAN works, discriminative and generative models.
Generator and discriminator models.
Improving object detection with GAN.
Application in seismic modeling.

FROM UNSUPERVISED TO SUPERVISED MODELS FOR SEISMIC INTERPRETATION

The issue with supervised CNN.
3 unsupervised classification of seismic data:

- K-means clustering.
- Agglomerative hierarchical clustering.
- Kohonen self-organizing feature map (SOFM).

Supervised models for seismic interpretation, the state of the art.

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Training - From Data Lakes to Digital Twins

DIGTWIN-EN-D | **Distance only** | **2 days**

In a digital networked environment, new approaches are coming up to put in place an Information Management Framework towards the use of a Digital Twin to support various processes along the plant lifecycle Why an Information Management Framework? Which standards to build it? How to preserve the semantics of data and control their interpretation? How to improve the data consistency and quality? How to enable the reuse of information? Which use cases for a digital twin? A standards-based approach is a prerequisite to succeed in the digital transition in industry. Other aspects need also to addressed to mitigate the risks of this digital transition impacting an industrial ecosystem

Level

Awareness

Public

Professionals from all Oil&Gas and Renewable Energies' disciplines who plan to have responsibilities in the digital transition progam in their industrial context and in the data management domain

Objectives

Attendees will be able to implement the following skills:

- Understand how to build an Information Management Framework based on standards
- Understand the key concepts and what is at stake in the digital transition from methodological, technological, economical and social points of view

Pedagogical & technical resources

This course can be delivered using in-person lectures or virtual classrooms. Each training module contains lectures, hands-on practices and/or case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO INFORMATION MANAGEMENT FRAMEWORK

Introduction to ISO/IEC 81346, Reference Designation System: key concepts, the differents parts (1,2, 10 and 12), methods and tools.
Application to Power Systems, Civil Works and Oil and Gas Systems.

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The READI (Requirements And Digital Information) project: Lessons learnt and future work.

DATA INTEGRATION STANDARDS

ISO 15926, Integration of life-cycle data in process plants including Oil and Gas production facilities: the different parts of the standard and their evolution.
Introduction to W3C standards: RDF, OWL, SPARQL.
ISO 15926-14, Data model adapted for OWL 2 DL.
ISO 15926-4 and Posc Caesar Association Reference Data Library.

INTRODUCTION TO DIGITAL TWINS

Definition of a digital twin and its purposes.
Industrie 4.0 and Asset Administration Shell.
Benefits of a digital twin in the various phases of the plant-lifecyle.
Challenges and why a semantic information management framework is needed for a full benefit of a digital transition in industry?

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Training - Stratigraphic Modeling: Basin Architecture & Sediment Distribution

DIONIS-EN-P | Face-to-face only | 5 days

This course provides an in-depth and practical understanding of stratigraphic modeling following a comprehensive workflow

Level

Knowledge

Public

Junior exploration geoscientists, multidisciplinary-team managers

Objectives

Attendees will be able to implement the following skills:

- Grasp methodology of sequence stratigraphy and concepts of stratigraphic evolution
- Model stratigraphic evolution of a basin using the software program DionisosFlow™
- Predict reservoir distribution and geometry, and assess efficiently the stratigraphic architecture of a sedimentary basin

Pedagogical & technical resources

- Hands-on training sessions on workstation.
- Use of the software program DionisosFlow™ (maximum 2 participants per workstation).
- Exercises and reports to launch questions and discussions at the end of the course.
- Software used during workshops: with courtesy of Beicip-Franlab.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Degree in G&G.
No prerequisites in basin modeling.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SEQUENCE STRATIGRAPHY ANALYSIS — 1 day

Depositional system concepts. Walther's law.

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Well log data.
Seismic data.
Sequence stratigraphy analysis workflow.

STRATIGRAPHIC PARAMETERS — 1 day

Presentation of allogenic parameters through the use of DionisosFlow™ software.
Sensitivity analysis exercises with DionisosFlow™.

ACCOMMODATION & SHORELINE SHIFTS — 1 day

Accommodation concept.
Shoreline trajectories.
Subsidence. Sediment supply.
Demo and exercises with DionisosFlow™.

SEISMIC & WELLS ANALYSIS — 1 day

Stratigraphic surfaces.
Systems tracts.
Demo and exercises with DionisosFlow™.

MODELING LOOP — 1 day

Links between stratigraphic modeling and basin modeling.
Questions and discussion.
Exercises with DionisosFlow™.

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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - Extractive Distillation

DISTEXT-EN-P | **Face-to-face only** | **3 days**

This course provides a deeper technical understanding of an extractive distillation column, its principle and consequences on the operation of the whole unit

Level

Skilled

Public

Anyone involved in the operation/troubleshooting of extractive distillation columns (process/operation engineers, shift leaders, panel operators, field operators)

Objectives

Attendees will be able to implement the following skills:

- Describe the role of the solvent and the functioning of the different extractive or non-extractive zones
- Explain the influence of each parameter on the conduct of the column and on the quality of the separation
- Identify the most frequent malfunctions and incidents

Pedagogical & technical resources

- The content of this course can be adapted to the customer's needs. The pedagogy is focused on the units concerned, under cover of a secrecy agreement if necessary
- Implementation of static simulation results with C4/ACN and C6/NMP processes
- The case studies are dealt with in group and based on typical situations encountered in the operation of the related process units

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SOLVENT EFFECT ON VAPOR-LIQUID EQUILIBRIA — 0.75 day

Typical composition of cuts to be processes: C4 and C6 cuts of a steamcracker or other units.
Natural volatility of compounds and focus on impurities to be removed, highlighting constraints and available processes.

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Action of the solvent and effects on relative volatilities of the compounds to be separated.
Effects of pressure, solvent ratio and feed composition.

BEHAVIOR OF AN EXTRACTIVE DISTILLATION COLUMN — 0.75 day

Feed composition. Required specifications.
Mass balance, product recovery ratio, losses of solvent.
Analysis of operating parameters: pressure and its pressure control system, solvent ratio, solvent temperature, thermal balance and vapor-liquid traffics.
Concentration profile: hydrocarbons and solvent, behaviors in extractive and non-extractive zones.
Meaning of temperatures and of temperature profile.

DOWNSTREAM PROCESSES — 0.5 day

Solvent recovery system and purification.
Make-up of solvent and adjustment of its composition in the solvent loop.
Superfractionation if needed.

OPERATING VARIABLES OF AN EXTRACTIVE DISTILLATION COLUMN — 0.5 day

Instrumentation and process control scheme.
Meaning of controlled parameters.
Impact of the modification of: solvent ratio, reboiler ratio, solvent composition and temperature and other parameters depending on the process configuration. Consequences on the yields, the composition of products and the energy consumption.

TROUBLESHOOTING & PROCESS INCIDENTS — 0.5 day

Solvent: decrease in flowrate, temperature modification, regeneration failure.
Feed: unexpected change in flowrate or composition.

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Training - E&P Data Architecture and Big Data

DMARCHI-EN-D | **Distance only** | **3 days**

The data architecture describes how data is structured. It is composed of policies, rules or standards that govern how data is stored and organized. The main existing architectures - SQL, graphs, NoSQL databases- will be presented and compared. As the O&G industry has been one of the pioneers in using massive data (big data), data architecture has now to evolve to handle big data

Level

Awareness

Public

Professionals from all O&G disciplines who plan to have responsibilities in the data management domain

Objectives

Attendees will be able to implement the following skills:

- Understand the various data bases architectures, with benefits/disadvantages
- Discuss architecture standards
- Identify and modify data architecture in their own company

Pedagogical & technical resources

Interactive lectures, case studies and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO DATA BASES ARCHITECTURE

TAXONOMY & ONTOLOGY, IMPORTANCE OF STANDARDIZATION

What is a well?
CFIHOS/JIP36 standardization project.

RELATIONAL DATABASES

ER diagrams.

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SQL.

NOSQL DATABASES

GRAPH DATABASES

Cypher.

CONNECTION DATA TO BUSINESS

Data integration.
Data virtualization.
Data warehousing and BI tools.

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Training - Drilling fluids: mud and cementing school

DMCS-EN-P | Face-to-face only | 30 days

This course provides the knowledge and skills needed to design & supervise drilling mud & cementing programs

Level

Knowledge

Public

Engineers, supervisors and lab professionals involved or interested in drilling fluids mud & cementing in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- acquire a thorough knowledge of drilling fluids and rheology
- learn how to choose the right equipment for solid removal
- learn how to communicate efficiently as drilling fluid specialist
- master the vocabulary specific to cementing
- understand and use primary cementing techniques and procedures
- select cement and necessary additives
- calculate major parameters in a cementing operation
- assess the quality of a cementing job

Pedagogical & technical resources

- Exercises, videos
- Application to a real case study
- Laboratory practices

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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DRILLING MUD

FUNCTIONS OF DRILLING FLUIDS

PHYSICAL & CHEMICAL CHARACTERISTICS

Specific gravity.
Rheology.
Filtration.
Alkalinity.
Chloride.
Hardness.

TYPES OF FLUIDS

Water base mud.
Oil base mud.

SHALE INHIBITION

Types of shale.
Chemical and physical inhibition.

MECHANICAL & WASTE TREATMENT

Function.
Selection of equipment and layout.
Separation ranges.
Overall efficiency.
Waste treatment:

- Solidification.
- Reinjection.
- Desorption.

TROUBLESHOOTING

Losses:

- Detection.
- Analysis and decision chart.
- Treatment.

Hole cleaning:

- Vertical well.
- Deviated and horizontal wells.

DRILLING MUD PROJECT

Design of a whole well muds: Application to real case drilling & completion program.

CEMENT

DRILLING MUD PROJECT

Cementing program.
Job planning and preparation:

- Casing running.

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- Selection of the fluids and flows.
- Cementing calculations.
- Primary, surface, multistage, liner cementing.
- Cement plugs.

CEMENT & SLURRIES

Cement chemistry, cement with environmental impact reduction (CO2).
Special slurries and additives.
Formulation and laboratory tests.
Rheology.
Displacement in eccentric annulus.
Salt zone and temperature problems.

SPECIAL CASES

Gas zone cementing.
Deviated and horizontal wells cementing.
Remedial techniques.
CO2 environment (CO2 resistant cement.

CEMENTING PROJECT

Design of a whole well cementing job: Application to real case drilling & completion project.

EVALUATION OF THE CEMENTING JOB

Principles and interpretation of the cement logs:

- Thermometry.
- Sonic (CBL - VDL).
- Ultrasonic (USIT).

Logs analysis on a real case

KNOWLEDGE ASSESSMENT

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This training course is offered under the **Alliance4Training** brand

Training - Data Protection and Cybersecurity

DMCYBR-EN-D | **Distance only** | **5 days**

This course provides:

Level

Awareness

Public

IT staff and technical teams interested in cybersecurity. Engineers and technicians involved in data management and E&P data processing (G&G, national data base/reservoir engineering/production and field development). Data governance. Legal affairs. Human resources. Corporate risk management teams.

Objectives

Attendees will be able to implement the following skills:

- Define the elements of an Information Security Management System (ISMS)
- Describe network security fundamentals and evaluate the security configuration of networks
- Identify the steps of establishing a Security Operations Center (SOC);
- Describe the most common security attacks and their countermeasures
- Understand the security consequences of Cloud computing and define mitigating measures

Pedagogical & technical resources

Daily lecture, exercises, and case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CYBER SECURITY

Importance of cybersecurity, cyber-attacks and lessons learned, cyber warfare, what are we trying to protect, are we successful?

SETTING UP AN INFORMATION SECURITY MANAGEMENT SYSTEM (ISMS)

Starting with ISMS: overview of key concepts based on ISO 27001, key artifacts.

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Introduction to risk management: purpose and specifics of risk management in an IT setting, qualitative vs. quantitative risk management.
Principles of information security policies and procedures: different kinds of documents: policies, procedures, guidelines and standards, roles and objectives of policies & procedures, typical content and format.
Workshop writing information security policies and procedures part I: group-based exercise in writing a brand-new information security policy on a chosen topic.

SECURING INDUSTRIAL SYSTEMS

Introduction into securing industrial systems:

- Overview of industrial systems such as SCADA and DCS and the impact on the ISMS.
- Practical concerns and considerations around industrial systems.

Overview of the IEC 62443 standard: overview of the IEC 62443 standard which applies specifically for securing industrial systems.

SPECIAL TOPICS INFORMATION SECURITY

Cloud computing:

- Developments in cloud computing, applicability within industrial systems.
- IaaS, PaaS, SaaS.

Setting up a Cyber Security Operations Center (SOC): benefits and challenges of a SOC, building and operating an industrial SOC.
Summary and the way forward:

- Recap of the course.
- Keeping the momentum going, suggested practical next steps.

SETTING UP DATA SECURITY

Data security: best practices of securing the organization’s data, data breaches and their impact.
Hands-on exercises based on real cases: Data breach incident management/data handling ethics.

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Training - Data Management and Data Science for E&P Operations

DMDAEP-EN-P | **Face-to-face only** | **50 days**

Whatever the Oil & Gas discipline, data is now taking a more and more important role in all business decision processes. An efficient management of data is becoming crucial for E&P companies, as data volume is constantly increasing and reservoir optimization is key. Because of this high data volume, data analytics have progressively invaded the O&G industry and been applied to a wide range of E&P applications The Data Management and Data Science for E&P Operations will provide a transverse understanding of how Data shall be managed and how it may be used to create value

Level

Awareness

Public

Oil & Gas professionals who plan to take responsibilities in data management and be part of their company's digital transformation

Objectives

Attendees will be able to implement the following skills:

- Go through the main data types used in the E&P domain
- Learn the main concepts of data management, as described by DAMA
- Be able to select and develop appropriate methods to organize data
- Understand cybersecurity challenges
- Understand E&P georeferenced data
- Learn about the machine learning applications in the E&P domain
- Discuss machine learning models validity

Pedagogical & technical resources

Interactive lectures either as presential class or as virtual class, exercises or hands-on practice and a final 2-week project in IFP Training premises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

MODULE I: DATA MANAGEMENT FOR E&P OPERATIONS	**30 days**
MODULE II: DATA SCIENCE FOR E&P OPERATIONS	**10 days**
MODULE III: FINAL PROJECT	**10 days**

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Training - Data Management and Data Science Final Project

DMDAPRJ-EN-P | **Face-to-face only** | **10 days**

This module consists in 10-day workshops and hands-on project to apply data management and data science concepts to E&P real-case data. The objective is to mimic usual situations in E&P companies that could involve data management and data science, and to create/develop models in E&P domains (seismic, geology...) to enhance decision-making processes in a short time Working on several workshops, the trainees have to solve issues like how to organize the E&P data acquired in a data room? How to assess data quality? Can Artificial Intelligence help? How would supervised or unsupervised AI helps for seismic interpretation?

Level

Awareness

Public

- O&G professionals who want to have a practical experience of data management and data analytics.
- This module is part of the IFP Training's Data Management and Data Science for E&P operations graduate certification

Objectives

Attendees will be able to implement the following skills:

- Explore a set of PDF documents
- Receive and evaluate external data to be used in a project
- Train a model to extract information from PDF documents
- Benchmark the created models
- Export the information
- Load a 3D seismic data set
- Apply a semi supervised model to detect horizons and faults
- Export the results

Pedagogical & technical resources

Interactive workshops and final project with presentation

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

WEEK 1

APPLIED DATA MANAGEMENT

Data reception.
Data Quality quantitative evaluation.

TEXT ANALYSIS: EXTRACTING INFORMATION FROM WELL REPORTS & LOGS

Selecting a training, a benchmarking and a blindtest data set.
Labelling the training set.
Building information detection models.
Benchmarking the models and defining a strategy to improve them.
Improving the models.
Blind testing.
Exporting the detected data.

WEEK 2

INTERPRETING A 3D SEISMIC CUBE USING A SEMI-SUPERVISED MODEL

Loading a SEGY file.
Automatic horizons interpretation.
Automatic faults interpretation.
Exporting faults and horizons.

FINAL PROJECT PRESENTATION

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Training - Data management for E&P operations

DMEP-EN-D | **Distance only** | **30 days**

Whatever the Oil & Gas discipline, data is taking a more and more important role in all business decision processes. Therefore, the role of the data manager, which was mainly seen as a data custodian, is now perceived as a major shareholder in all discipline The purpose of this module is to train Oil & Gas technicians and engineers to understand all the aspects and underlying of value creation based on data

Level

Awareness

Public

Professionals from all O&G disciplines who plan to have responsibilities in the data management domain

Objectives

Attendees will be able to implement the following skills:

- Learn the main concepts of data management
- Elaborate a detailed data governance plan
- Interact effectively with IT and software engineer to define the data management resources
- Specify a GIS project, and understand what is Earth Modeling from a data point of view
- Understand the concepts for an efficient dataroom

Pedagogical & technical resources

Interactive lectures, case studies and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

E&P DATA: VALUE & FORMAT

DATA MANAGEMENT FUNDAMENTALS

DATA PROTECTION & CYBERSECURITY

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E&P DATA ARCHITECTURE & BIG DATA

VIRTUALIZATION & DATA TRANSFER/IOT

GEOGRAPHIC INFORMATION SYSTEMS

FROM DATA LAKES TO DIGITAL TWINS

DATA QUALITY MANAGEMENT

NATIONAL DATA REPOSITORIES & DATA ROOMS

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Training - E&P Data: Value and Format

DMFORMA-EN-D | **Distance only** | **5 days**

The O&G industry has been involving data forever. O&G data is key to business and may as such be considered as an asset, which requires dedicated management. However, data may exhibit different types in the E&P. The E&P data: value and format introduces the main data types that can be encountered across various E&P disciplines

Level

Awareness

Public

Professionals from all O&G disciplines who plan to have responsibilities in the data management domain

Objectives

Attendees will be able to implement the following skills:

- Describe data management and understand data as an asset
- Recognize the various types of data in the O& G business and their relations
- Recognize and manage the main semi-structured formats used in the O&G business

Pedagogical & technical resources

Interactive lectures, case studies and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION: O&G IS A DATA CENTRIC BUSINESS — 0.5 day

Data asset: Why data is a key asset for the oil and gas industry. Why it is a particular asset, which needs special management skills.

GEOPHYSICAL & SEISMIC DATA — 0.5 day

What is seismic acquisition and processing from a data manager point of view: the main principles of seismic reflexion. Land and marine acquisition. Various type of processing.
Acquisition data format: the SEG-D format.

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Stacked data format: the SEG-Y format.

WELL DATA — 0.5 day

Wells, wellbores and completion: The interest of a standard taxonomy, PPDM taxonomy as a case study.
Measurement in the wells. Well logs and composites, LAS and DLIS format. Reading a log header in a PDF, a LAS or a JSON format.
Other data related to wells: core measurements, geochemistry, Fluid analysis: Storing key information in unstructured formats.

RESERVOIR DATA — 0.5 day

Reservoir data: type of reservoir data. The value of data integration.

DATA FOR OPERATIONS — 0.5 day

Production monitoring: points of measurement, metering, real-time data. Importance for the asset.
Construction and engineering: tags, PID and PLC.
Maintenance and logistic: the use of the ERC for maintaining and inspecting an industrial asset.

DATA LIFE CYCLE — 0.5 day

Data Life cycle and management.

MINI-PROJECT — 2 days

Reading well logs and creating composites.
Reading SEGY files.
Listing equipment and equipment's characteristics from P&IDs.

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Training - Data Management Fundamentals (DAMA)

DMFUND-EN-D | **Distance only** | **5 days**

This 5-day course addresses all the information management disciplines as defined in the DAMA body of knowledge (DMBoK). Taught by an industry recognized DAMA DMBoK (2.0) author and CDMP(Fellow) this course provides a solid foundation across all of the disciplines across the complete Information management spectrum. By attending the course, delegates will get a firm grounding of the core Information Management concepts and illustrate their practical application with real examples of how Information architecture is applied

Level

Awareness

Public

Practitioners involved in Information management, data governance, master data management and data quality initiatives including: information managers, information architects, data architects, enterprise architects data managers, data governance managers, data quality managers, information quality practitioners, business analysts, executives, technology leaders, business technology partners

Objectives

Attendees will be able to implement the following skills:

- Appreciate concepts including lifecycle management, normalization, dimensional modeling and data virtualization and appreciate why they are important
- Understand the different facets (dimensions) of data quality and explore a workable data quality framework
- Describe the major considerations for successful data governance and how it can be introduced in bite-sized pieces
- Understand the different types of data models and their applicability

Pedagogical & technical resources

Daily lecture, exercises, and case studies. DAMA certification exam

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION TO DAMA

What is data management and why is it critical.
What are the different disciplines of data management?
DAMA & the DMBoK 2.0, and its relationship with other frameworks (TOGAF/COBIT...).
Overview of available professional certifications focusing on DAMA CDMP.

DATA GOVERNANCE

What is Data Governance and why it is important. A typical data governance reference model.
The main data governance roles: owner, steward, custodian.
The role of the Data Governance Office (DGO) and its relationship with the PMO.
What is the difference between Data Governance and IT Governance, and does it matter?
Overview of the Data Management implications of a selection of other regulations.
The key steps that organizations can take to prepare for compliance with current and future regulations.
How to get started with data governance and sustaining and building data governance.

DATA LIFECYCLE MANAGEMENT

Proactive planning for the management of data across its lifecycle.
Differences between data life cycle and a Systems Development Lifecycle (SDLC).
Data governance touch points throughout the data lifecycle.

METADATA MANAGEMENT

What is metadata and why it is important?
Types of metadata, their uses and their sources.
Metadata and business glossaries. What is the connection?
How metadata provides the essential glue for data governance and metadata standards.

DG MINI PROJECT

Starting the Data Governance Program, what you must get in place early. How to produce a realistic business case for DG linked to business objectives?

DOCUMENT RECORDS & CONTENT MANAGEMENT

Why document and records management is important.
Taxonomy vs. ontology... what's the difference.
Legal and regulatory considerations impacting records and content management.

DATA MODELING BASICS

Types of data models, their use and how they interrelate.
The development and exploitation of data models, ranging from enterprise, through conceptual to logical, physical and dimensional.
Maturity assessment to consider the way in which models are utilized in the enterprise and their integration in the System Development Life Cycle (SDLC).
Data modeling and big data.
Why data modeling plays a critical part in data governance and BP case study.

DATA QUALITY MANAGEMENT

The different facets of data quality, and why validity is often confused with quality.
The policies, procedures, metrics, technology and resources for ensuring data quality.
A data quality reference model and how to apply it.
Why data quality management and data governance are interconnected and case studies.

DATA OPERATIONS MANAGEMENT

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Core roles and considerations for data operations.
Good data operations practices.

DATA RISK & SECURITY

Identification of threats and the adoption of defenses to prevent unauthorized access, use or loss of data and particularly abuse of personal data.
Identification of risks (not just security) to data and its use.
Data management considerations for different regulations, e.g. GDPR, BCBS239.
The role of data governance in data security management.

MASTER & REFERENCE DATA MANAGEMENT

The differences between reference and master data.
Identification and management of master data across the enterprise.
4 generic MDM architectures and their suitability in different cases.
How to incrementally implement MDM to align with business priorities.
Statoil (Equinor) case study.

DATA WAREHOUSING, BUSINESS INTELLIGENCE & DATA ANALYTICS

What is data warehousing and business intelligence and why do we need it.
The major data warehouse architectures (Inmon & Kimball).
Introduction to dimensional data modeling.
Why master data management fails without adequate data governance.
Data analytics and machine learning and data visualization.

DATA INTEGRATION & INTEROPERABILITY

What are the business (and technology) issues that data integration is seeking to address?
Data integration and data interoperability - What's the difference?
Different styles of data integration and interoperability, their applicability and implications.
The approaches and guidelines for provision of data integration and access.

DAMA CERTIFICATION-FIRST LEVEL

Students will have the opportunity to sit the CDMP Data Quality specialist exam at the end of this course to attain DAMA Certified Data Quality Professional designation and a credit towards attainment of a full CDMP at Practitioner or Master Level.

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Training - Data Management Challenges for Managers

DMMNG-EN-P | **Face-to-face only** | **2 days**

In the whole O&G industry, data is taking a more and more important role in all business decision processes Most managers, however, are not data management experts. The purpose of this course is to highlight how critical and valuable data is, and also to emphasize on the benefits of robust data management on business

Level

Awareness

Public

Management level

Objectives

Attendees will be able to implement the following skills:

- Why is data management critical for successful business
- What are the benefits of robust data management

Pedagogical & technical resources

Interactive lecture and business case

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO DATA MANAGEMENT

What is data management and why is it critical.
What are the core disciplines of data management.
Why should the business be concerned with data management.
What are the benefits of robust data management.
What are the business issues when data management is not in place.

DATA QUALITY & MASTER DATA MANAGEMENT

What are the different facets of data quality.
Why validity is often confused with quality.

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What are the real implications of “single view” of a data object (e.g. well, customer) and what needs to be established to make this a reality.
What are the technical solution options... and their implications.
Statoil (Equinor) case study.

BUSINESS DATA GLOSSARY

What are data models and why they are still critical.
The big mistakes made with big data and why data modeling is required.
Why data modeling plays a critical part in data governance and bp case study.
Metadata and business glossaries. What’s the connection and why it’s an essential component in a business.

CYBER DATA RISK & SECURITY

Identification of different types of threats.
Approaches and the adoption of defenses to prevent unauthorized access, use or loss of data and particularly abuse of personal data.
Identification of risks (not just security) to data and its use.
Data management considerations for different regulations, e.g. GDPR, BCBS239.
The role of data governance in data security management.

DATA CENTRICITY & GOVERNANCE

What do we mean by data centricity?
What must be put in place to become data centric?
Components of a great data strategy.
Establishing goals and gaining buy-in for a data strategy.
How to get started with data governance in bite sized chunks.

Sessions

Rueil-Malmaison - From 09/28/2026 to 09/29/2026 **1920 €/HT**

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Training - Introduction to Data Management for Operations

DMOPE-EN-P | **Face-to-face only** | **3 days**

From the top floor to the drill floor it is frequently said that “data is an asset”. The purpose of this 3 days course is to illustrate: why data is an asset what are the main data types used in the E&P industry the data life circle various data storing strategies and implementations the data quality insurance and governance

Level

Awareness

Public

Technicians and decision makers of the drilling, construction, production and maintenance domain but out of the data-management discipline

Objectives

Attendees will be able to implement the following skills:

- Understand the data architecture of their organization
- Evaluate the quality of the data they consume
- Participate to the data quality improvement

Pedagogical & technical resources

Daily lecture and exercises and filed case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION — 0.25 day

The value of a data asset.
The main data categories for the drilling (FP), construction, reservoir, production, maintenance and HAS discipline.
The data management function as seen by DAMA.

DATA GOVERNANCE — 0.25 day

What is data governance, why it matters.

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The asset life cycle/the data life cycle.
The data shareholder, role and responsibility (RACI).
The role of the data stewards, data manager, data scientist...

DATA ARCHITECTURE MANAGEMENT USING THE DATA RELATED TO THE WELL DESCRIPTION — 0.25 day

What is a well (using the PPDM guideline), the importance of using a common vocabulary/semantic.
The CFIHOS IOGP data standard.
The energistic standards (PRODML, WITSML, RESQML).
The OSDU initiative.

DATA DEVELOPMENT — 0.25 day

Develop and maintain logical and physical data models for the production data.

DATA OPERATION MANAGEMENT — 0.25 day

The notion of SLA.
Cloud storage.
The notion of big data and data lake backups and archives.
Data visualization (incl. BI).
Data in a GIS.

DATA SECURITY MANAGEMENT — 0.25 day

Manage users (role, privileges...), monitor users authentication.
The information confidentiality classification.
Data security audit, introduction to ISO 27001.

REFERENCE & MASTER DATA MANAGEMENT — 0.25 day

Definition of both terms:

- Reference data: used taxonomy, semantic definition of the drilling data (e.g.: API).
- Master data: drilling data values.

Well data integration: the well UWI.

DATA WAREHOUSING — 0.25 day

Descriptive (content description) and transactional data.
Use case based on the management of spare part using SAP-PM and SAP-MM

DOCUMENT & CONTENT MANAGEMENT — 0.25 day

Unstructured data: e.g. the installation PIDs.
Implementing a Document Management Systems (EDMS).
Retention and disposition of document.

DATA QUALITY MANAGEMENT — 0.25 day

The different aspects of “Data Quality”.
Make the data “trustable”.
Lean and 6-sigma methodologies.
Define data quality metrics, measure and control the data quality.
Data audit.

PROFESSIONAL DEVELOPMENT OF DATA MANAGERS — 0.25 day

Data management as a recognized discipline.
How the oil companies digitalization journey impacts the data manager role.
Data managers in others industries.

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TAKEAWAYS

0.25 day

10 key points about data management to remember.

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Training - Practical Data Quality Management - DAMA

DMQUAL-EN-D | **Distance only** | **5 days**

Information is at the heart of all organizations, akin to blood flowing through its arteries and veins. However, all too often Information is not professionally managed with the rigor and discipline that it demands. Nonetheless the implications of poorly managed information can be catastrophic, from ICO and other regulatory sanctions ultimately to business collapse. Professor Joe Peppard summed it up when he said, “The very existence of an organization can be threatened by poor data” This course will provide the rationale why information management is critical and provide methods and practices for addressing key information management challenges

Level

Awareness

Public

Personnel involved in Information management, data governance, master data management and/or data quality, initiatives including: information managers, information quality practitioners, executives, technology leaders, business technology partners, business analysts, enterprise architects, information architects, and data architects

Objectives

Attendees will be able to implement the following skills:

- The difference between "data quality" and "data quality management" and why it matters
- The relationship between data quality management and other core information management disciplines particularly master data management, data modeling and data governance
- Who is involved in making data quality initiatives work
- The major concepts that are fundamental to data quality management, such as a framework for Information quality, information life cycle, data quality dimensions, business impact techniques, root cause analysis techniques, etc..

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MAKING THE CASE FOR DATA QUALITY

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How can we make the connection between data quality and business needs?
What does “data quality” mean in the context of business processes and can we define it?
What is data quality vs data quality management and why does it matter?
What happens when it goes wrong? We will examine many examples of data quality issues from real world cases and assess their implications and see how these could have been avoided.

MEASURING DATA QUALITY

What are the different facets (dimensions) of data quality?
What do each of these dimensions’ mean?
What are the pitfalls of looking at just one data quality dimension in isolation?
How can we evaluate data quality for the data quality dimensions and are these applicable to the problems being faced? This is an essential step to provide the input for root cause analysis and remediation approaches.
4 different styles and approaches to reporting data quality will be discussed highlighting the benefit and applicability of each.

ASSESSING THE CAUSES & IMPACT OF POOR DATA QUALITY

Continuing the data quality measurement framework, what is the relationship between data quality dimensions, data quality measures and data quality metrics.
What is their applicability and how many should we include in our data quality assessments?
What are the techniques to determine the impact of poor-quality data on the business?
What are the benefits of increasing data quality and the business impacts of poor data quality?
Root cause analysis: What really caused the problem? An approach for identifying and prioritizing the real causes of the data quality problems?
Techniques for root cause analysis including “5-whys” & “Fishbone”.
Developing targeted strategies and approaches for addressing the causes.

A FRAMEWORK FOR IMPROVING DATA QUALITY

A data quality reference model & how to apply it.
Starting and sustaining a data quality initiative: the key steps for achieving data quality success, and the activities and structures that are required together with the necessary steps for creating the foundation for data quality.
What are the typical organization roles, responsibilities, organization structures and principles that should be in place to ensure successful data quality?
How can we put all of this together into a workable framework for establishing and sustaining data quality in your organization?
Now that you’ve made a start, how do you sustain data quality. How can we bake data quality (and other data considerations) into our “business as usual” activities to make it stick?

AUTOMATED SUPPORT FOR IMPROVING DATA QUALITY

What tooling & automated support exists for data quality initiatives?
What are the types and the applicability of software tools to support a data quality initiative?
What is a reference architecture model for data quality tools, and the common functions, capabilities, and the differences between them?
What items should we examine when selecting data quality tooling? An evaluation checklist will be discussed covering what to look out for.

FITTING DATA QUALITY INTO AN OVERALL INFORMATION MANAGEMENT FRAMEWORK

What is the relationship between data quality, master data management, data governance & the other information disciplines?
What is the crucially important role of data models in a data quality initiative?
How is this governed? The essential part that data governance undertakes.
How do we measure the success of a data quality initiative & the pitfalls of tactical data cleaning where the data is corrected in situ?

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MINI-PROJECT

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Training - Drive Mechanisms and EOR

DRIVE-EN-P | Face-to-face only | 4 days

This course provides an in-depth understanding of reservoir drive mechanisms and Enhanced Oil Recovery (EOR) methods and corresponding recovery performances

Level

Knowledge

Public

Newly-hired and 2- to 3-year experienced reservoir engineers willing to deepen their knowledge in drive mechanisms and Enhanced Oil Recovery methods; geoscientists, petroleum engineers and production engineers moving towards reservoir engineering

Objectives

Attendees will be able to implement the following skills:

- Discuss the natural mechanisms of production of oil and gas reservoirs and their corresponding expected performance
- Discuss the mechanisms of secondary recovery through water injection and non-miscible gas injection and their related expected performance
- List the main Enhanced Oil Recovery methods and discuss their mechanisms and corresponding expected performance
- Describe typical EOR projects workflow and related screening criteria

Pedagogical & technical resources

Interactive lectures and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRIVE MECHANISMS - PRIMARY RECOVERY — 2 days

Oil reservoirs:

- Undersaturated oil expansion.

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- Solution gas drive.
- Gas gap drive.
- Natural water drive.
- Introduction to analytical aquifer models.
- Steady-state models - Small Pot model.
- Transient models - Hurst & Van Everdingen model and Carter-Tracy model.

Gas reservoirs with and without aquifer.
Material Balance:

- Principles and equations.
- Generalized Material Balance.
- Drive Index.
- Campbell and Cole plots.
- Application: estimating recovery factors from material balance, checking aquifer and gas cap size, checking accumulation estimate...

DRIVE MECHANISMS - SECONDARY RECOVERY — 2 days

Reminders about multiphase flow in the reservoir: wettability, capillarity, relative permeability.
Water and non-miscible gas injection:

- Principles.
- Sources of fluid, well injectivity, injectors pattern.
- Expected performance of water and gas injection.

Sweep efficiency:

- Microscopic efficiency & influence of Capillary Number.
- Areal efficiency and influence of Mobility Ratio.
- Vertical efficiency and influence of permeability vertical heterogeneity.

ENHANCED OIL RECOVERY — 1 day

Principles and mechanisms of main EOR methods:

- Chemical flooding.
- Miscible gas injection.
- Thermal flooding.

EOR projects:

- Screening criteria & economics.

Application - Field cases review.

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Training - Drive mechanisms - Enhanced oil recovery - MBAL

DRIVEOR-EN-P | Face-to-face only | 10 days

This course provides an in-depth understanding of reservoir drive mechanisms and Enhanced Oil Recovery (EOR) methods and corresponding recovery performances

Level

Knowledge

Public

Newly-hired and 2- to 3-year experienced reservoir engineers willing to deepen their knowledge in drive mechanisms and Enhanced Oil Recovery methods; geoscientists, petroleum engineers and production engineers moving towards reservoir engineering

Objectives

Attendees will be able to implement the following skills:

- Discuss the natural mechanisms of production of Oil & Gas reservoirs and their corresponding expected performance
- Discuss the mechanisms of secondary recovery through water injection and non-miscible gas injection and their related expected performance
- List the main Enhanced Oil Recovery methods and discuss their mechanisms and corresponding expected performance
- Describe typical EOR projects workflow and related screening criteria and economics
- Carry out simple material balance calculations for matching reservoir parameters/forecast recovery

Pedagogical & technical resources

- Interactive lectures and exercises
- Real field case studies
- Hands-on practices using dedicated industrial software for PVT matching, history matching and production forecast through material balance

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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DRIVE MECHANISMS - PRIMARY RECOVERY — 2 days

Oil reservoirs:

- Undersaturated oil expansion.
- Solution gas drive.
- Gas gap drive.
- Natural water drive.
- Analytical aquifer models.
- Hurst & Van Everdingen model.
- Carter-Tracy model.

Gas reservoirs with and without aquifer.
Material balance:

- Principles and equations.
- Generalized Material Balance.
- Drive Index.
- Campbell and Cole plots.
- Application: estimating recovery factors from material balance, checking aquifer and gas cap size, checking accumulation estimate...

DRIVE MECHANISMS - SECONDARY RECOVERY — 2 days

Reminders about multiphase flow in the reservoir: wettability, capillarity, relative permeability.
Water and non-miscible gas injection:

- Principles.
- Sources of fluid, well injectivity, injectors pattern.
- Expected performance of water and gas injection.

Multiphase flow stability and influence of Mobility Ratio.
Diffusive flow:

- Buckley-Leverett frontal displacement theory.
- Welge method.

Sweep efficiency:

- Microscopic efficiency & influence of Capillary Number.
- Areal efficiency and influence of Mobility Ratio.
- Vertical efficiency and influence of permeability vertical heterogeneity.

PRACTICAL MATERIAL BALANCE — 3 days

Practical exercises on synthetic and real field case data using MBAL™ software:

- PVT and reservoir parameters history match.
- Production forecast.

ENHANCED OIL RECOVERY — 3 days

Principles and mechanisms of main EOR methods:

- Chemical flooding.
- Miscible gas injection.
- Thermal flooding.

EOR projects:

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- Screening criteria.
- Economics.

Application - Field cases.

Sessions

Rueil-Malmaison - From 10/26/2026 to 11/06/2026 **6000 €/HT**

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Training - Dynamic Reservoir Simulation

DSIMRES-EN-P | Face-to-face only | 10 days

This course provides a comprehensive and practical understanding of dynamic reservoir simulation, covering principles and concepts as well as data reviewing and formatting

Level

Skilled

Public

Newly-hired and 2- to 3-year experienced reservoir engineers willing to deepen their knowledge in reservoir fluid properties and PVT modeling. It is also intended for geoscientists, petroleum engineers and production engineers moving towards reservoir engineering

Objectives

Attendees will be able to implement the following skills:

- Discuss the fundamental concepts of dynamic reservoir simulation
- Build a simple reservoir simulation model (including data gathering and data QC)
- Carry out a simple reservoir simulation study (including taking into account technical and economical constraints, basic history matching and production forecast) using a black-oil model

Pedagogical & technical resources

- Interactive lectures and exercises
- Hands-on practice using state-of-the-art industrial software packages: ECLIPSE™, PETREL-RE™ or PumaFlow™ reservoir simulator
- Black oil reservoir simulation including the manipulation of all kind of reservoir data (geological, petrophysical, PVT, well data, production history)
- Software used during workshops: with courtesy of Schlumberger

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION TO DYNAMIC RESERVOIR SIMULATION — 0.5 day

Physical aspects and fundamental laws.
Mathematical and numerical aspects (diffusivity equation, transport equation, equations od state...).
Types of reservoir simulation models: black oil, compositional, thermal, chemical and double porosity model.

INTRODUCTION TO THE SIMULATOR — 0.5 day

Simulation software presentation.
Practical exercise (building a model from A to Z).

SPACE & TIME DISCRETIZATION — 0.5 day

Various types of grids (Cartesian grid, radial grid, corner point grid, etc.), related properties and key elements to take into account.
Time step management and main events to take into account.
Practical exercise using the simulator.

PETROPHYSICS — 1 day

Data review and petrophysical upscaling.
Practical exercise using the simulator.

FLUIDS — 1 day

Data review and formalisms used by the simulator.
Use of black oil data set and integration of lab experiments results (constant composition expansion, constant volume depletion).
Practical exercise using the simulator.

INITIAL STATE — 1 day

Data review and formalisms used by the simulator (equilibration regions).
Identification of fluids in place per region.
Practical exercise using the simulator.

AQUIFERS REPRESENTATION — 0.5 day

Formalisms used by the simulator (gridded or analytical aquifers).
Review of different possibilities (bottom, edge, transient, steady state, semi steady state) and Hurst & Van Everdingen tables.
Practical exercise using the simulator.

FLOW REPRESENTATION — 1 day

Formalisms used by the simulator (transmissivity multipliers, end point scaling of capillary pressures and relative permeability).
Identification of production mechanisms and material balance analysis.
Practical exercise using the simulator.

WELLS REPRESENTATION — 1 day

Formalisms used by the simulator (wells trajectory, perforations...).
Introduction to well performance:
Inflow performance and numerical PI, outflow performance and VFP tables.
Practical exercise using the simulation software.

PRODUCTION FORECAST — 2 days

Objectives and methodology.
Integration of well representation and production constraints.
Estimation of future productions linked to different scenarios and identification of remaining uncertainties.

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Practical exercise using the simulator.

Sessions

Rueil-Malmaison - From 11/16/2026 to 11/27/2026 **8500 €/HT**

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Training - Operation of a Multiple-Draw Distillation Column

DSMSS-EN-P | **Face-to-face only** | **5 days**

This course provides a deeper understanding of the working principle and operational tuning of multiple-draw-off distillation columns through a hands-on experience

Level

Skilled

Public

Console operators, production supervisors, shift supervisors in charge of multiple-draw-off columns: crude oil atmospheric and vacuum distillation unit, fractionation towers of cracking units

Objectives

Attendees will be able to implement the following skills:

- Specify the operating principles of multi-rack distillation columns
- Explain the role and importance of each of the control loops involved in the process control system
- Explain the adjustment of product qualities with regard to the use of setting parameters

Pedagogical & technical resources

- Use of a virtual column modeled on CORYS IndissPlus dynamic simulator
- Exercises are conducted in small groups of 2 to 3 participants, each group operating its own virtual column. Each exercise includes: a pre-discussion of the problem; definition of the target exercise objective; adequate time to run the virtual columns; open analysis of the results, shared with all participants; and practical conclusions related to the operation of the columns
- Attendees are invited to bring descriptions of their specific column control strategies for group discussion and analysis. Conclusions drawn from the exercises on the simulator can be transposed to other actual control schemes
- The content of the exercises can be customized to the needs and specific features of the client site
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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OPERATING PARAMETERS OF THE SIMULATED CRUDE DISTILLATION COLUMN — 1 day

Analysis of the column: instrumentation, control loops, and analyzers. Analysis of various operating conditions and the significance of each operating parameter:

- Material balance, concepts of cut points, quality and fractionation capability.
- Total and partial pressures, pressure profiles along the column.
- Feed temperature, over flash and energy consumption.
- Role and operating parameters of the strippers, and stripping ratios.
- Energy balance, heat extraction by pumparounds, and partial condensation, overflash.
- Overhead condensation: and various control systems.
- Liquid and vapor traffics, fractionation zone and heat transfer zones.
- Temperature profiles.

MODIFYING CUT POINTS — 2 days

Control of the mass balance, and characteristics of the products.
Change in the side streams flow rates - Change in the overhead cut flow rate.
Practice changing the cut point between two side streams to meet quality specifications.
Tuning the operating parameters of the strippers; vapor, reboiling, stripping ratio, and flash point.

ADJUSTING ENERGY BALANCE — 1 day

Modifying heat rates extracted by pumparounds: effects of changes to flow rates, internal traffics and properties of side streams.
Change in the transfer line temperature, and energy consumption. Influence of pressure and the consequence on feed heater and top degassing.
Consequence of changes to the energy balance, liquid and vapor traffics, and their effect on fractionation capability.

TUNING THE COLUMN — 1 day

Adjusting the quality of the products.
Optimization criteria for the energy balance: adjustment of the pumparounds to get the desired fractionation capability.
Influence of the main disturbances: feed flow rate, stripping steam - Influence of a change in the crude oil quality.
Specific features of other multiple-draw columns like vacuum columns and other fractionators.
Management of the different requirements (cut points, specification of cuts...) depending on the control scheme implemented for any column studied.

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Training - Distillation - Optimization and Troubleshooting

DSS-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of efficient distillation columns operation as well as optimization strategies implementation

Level

Expert

Public

Engineers, process engineers, process control personnel and technical staff in the refining and petrochemicals industries

Objectives

Attendees will be able to implement the following skills:

- Know about all parameters and profiles for the analysis of a distillation column operation
- Master the concepts necessary to optimize the operation of a column
- Identify the performances and limits of different control systems
- Detect deficiencies, find their origin and solutions

Pedagogical & technical resources

- Highly efficient learning process: operation of a virtual column using a dynamic simulator that models the main physical phenomena of distillation
- Troubleshooting case studies to illustrate process control schemes
- The content of the exercises can be customized to the needs and specific features of the client site
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including an handling situation of operation to find the settings for tuning a column

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OPERATING PARAMETERS: DEFINITION & SIGNIFICANCE — 0.5 day

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Material balance of the virtual column: cut point, separation quality and concept of fractionation capability.
Column pressure: pressure control and pressure profile along the column.
Heat balance. Reflux and reboiling ratio and selectivity assessment.
Internal flow rates profiles, concentration and temperature profiles. Concentration peaks.

FRACTIONATION CAPABILITY OF AN INDUSTRIAL DISTILLATION COLUMN — 0.5 day

Impact of the parameters related to the fractionation capability:

- Liquid-vapor internal flow rates, associated with reflux and reboiling ratios.
- Number of theoretical stages and internal equipment efficiency.
- Position of feedstock inlet related to feed characteristics.

Fractionation capability and related energy consumption.
Each item is illustrated by practical exercises conducted by trainees on a dynamic simulator.

PROCESS CONTROL PARAMETERS — 3 days

The simulator handling scenario covers the different aspects of operation and control of columns. It starts with a simple control system and implements increasingly sophisticated control systems on increasingly complex columns: from binary to a multiple draw-off column (crude oil distillation).
Survey of operating disturbances; origins and causes.
Process control strategy and optimization targets.
External or internal reflux control, reboiling control with flow rates or duty monitoring.
Material balance control: sensitive tray, temperature control systems.
Optimization of the heat balance: additional energy through the feed or the reboiler, low pressure operation and energy savings.
Implementation of more complex control systems.
Analysis of disturbances caused by the feed and systems for feed forward control.
Implementation of process control in multi-column trains.
Specific case of multiple draw-off columns:

- Quality tuning through material balance (temperature, flow rate or level control).
- Heat balance monitoring (role of pumparounds and vaporizing refluxes, optimization of the fractionation capability).
- The participants can provide diagrams of their distillation columns, the methodology will be applied to confirm that a change of operating parameter does not have the same consequence according to the control scheme implemented.

EQUIPMENT TECHNOLOGY & TROUBLESHOOTING — 1 day

Trays: technology; high efficiency trays, performance and flexibility.
Packings and distribution systems: flooding, fouling, mechanical damage and remedies.
Reboilers and condensers: implementation and working principles, various control strategies, problems and related origins, possible solutions.
The items in this chapter are exemplified by case studies corresponding to actual industrial problems and related solutions.

Sessions

Rueil-Malmaison - From 06/14/2027 to 06/18/2027 — **4460 €/HT**

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Training - DeepWater Drilling and Completion

DWE-EN-P | Face-to-face only | 50 days

This course provides in-depth technical knowledge of deepwater drilling including the practical understanding of offshore drilling techniques, operations, equipment and well control procedures

Level

Expert

Public

- Operator: drilling managers, engineers, supervisors
- Contractor: rig managers, tool pushers and drillers

Objectives

Attendees will be able to implement the following skills:

- Get all required theoretical and practical knowledge about deepwater drilling
- Know about equipment specific to offshore and deepwater drilling and completion operations
- Understand the process of a subsea development

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Videos, animations and exercises
- Application to a real case (project) for the participants in the "Deepwater Drilling & Completion" IFP Training Certificate course
- Several simulation exercises using the drilling simulators
- Knowledge assessment on regular basis

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HSE & MAINTENANCE — 5 days

Bridging document and drilling contractor safety management system.

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Rig P&ID's, hazardous area plans, station bills, fire/lifesaving plan, class/flag status reports...
Rig critical equipment that have an impact on the safety, rig operation and the environment.
Update of maintenance system history and stock level of critical spare parts.
Standards used in the drilling industry (e.g. API) and their implications for drilling equipment (i.e. annual 3rd party inspections and audits...).
Rig acceptance documentation and Well Control Equipment Certification (i.e. CoC's).

MARINE — 5 days

Deepwater Metocean environments.
Type of MODU's rigs (moored vs dynamically positioned rigs).
Nautical basics.
Navigation and station keeping.
Stability and ballast control.

DEEPWATER DRILLING — 15 days

Deepwater geology and geoscience.
Deepwater pressure management.
Key and essential differences of deepwater.
Deepwater well planning and design.
Operating: key aspects of deepwater planning and project implementation.
Technology application:

- Compensation and tension systems in deepwater.
- Drilling riser string, subsea bop stack, associated operating equipment and specific optional equipment (i.e. riser gas handler, bop pressure intensifiers).
- Subsea wellheads.
- Subsea cementing jobs.
- Hydrates.
- Managed Pressure Drilling (MPD) and Dual Gradient Drilling (DGD).
- HPHT.

Operating limitations including positioning alerts (i.e. green, green advisory, yellow and red), emergency disconnections, "wait on weather" situations and simultaneous operations (SIMOPS).

SUBSEA WELL CONTROL IN DEEPWATER ENVIRONMENT — 5 days

Pressure analysis and kick control.
Subsea well control.
Particular cases: incidents during circulation, shallow gas, volumetric method, maasp, deviated well, kick during running of casing or during cement jobs, unshearable periods.
Subsea well control equipment: diverter, riser string, LMRP & BOP stack, BOP HPU, MGS, choke manifold and associated lines.

DRILLING SIMULATOR EXERCISES — 5 days

Deepwater case.
Managed Pressure Drilling (MPD).

OFFSHORE WELL COMPLETION — 5 days

Functions to be carried out and corresponding equipment:

- Production string(s) configurations (conventional or tubing less, single or multi-zones).
- Subsea completion and workover risers.
- Subsea BOP.
- Production wellhead: tubing head spool and Christmas tree (components, design).

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- Subsea X-mass trees.
- Subsurface safety valve (subsurface controlled, surface controlled).
- Tubing and connections (main characteristics, criteria of choice).
- Packers and accessories (drillable or permanent, retrievable).
- Bottom-hole devices (landing nipples, circulating devices...).

Tubing string design (fundamentals of tubing movement and forces):

- Point to be verified.
- Packer permitting free motion (tubing movement, tension on the tubing hanger).
- Packer permitting no motion (packer to tubing force, tension on the tubing hanger).

Subsea completion present trends.

DEEPWATER PROJECT — 10 days

HSE and waste management.
Deepwater well architecture and its associated barriers related to geological hazards.
Well profile, anti-collision study and casing design.
Chronology of operations, BOP and well control procedures, drilling sequence review.
Fluids and cementing design.
Bit program, BHA strategy, surveying program and logging.
Drilling equipment specifications for deepwater vessel selection and “fitness for purpose”.
Well testing and completion.
Well intervention and stimulation.
Well suspension and abandonment.
Authorization For Expenditure (AFE) guidelines for time and budget estimations.
Presentation to a jury.

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Training - Upstream Economics and Management

EAMC-EN-P | Face-to-face only | 60 days

This training is part of a professional carrier development to managerial positions in exploration & production business, requiring specific skills in economics, contracts, taxation, finance, auditing and project management

Level

Knowledge

Public

Executives from the upstream sector who require a global picture of all the technical, economic, financial, contractual & audits of exploration and production activities

Objectives

Attendees will be able to implement the following skills:

- Develop negotiation skills in petroleum contracts
- Build advanced economic models for evaluating Exploration-Production projects
- Interpret the different financial statements published by Oil & Gas companies
- Prepare and conduct a contractual audit
- Effectively manage the project: engineering studies, procurement, construction and commissioning

Pedagogical & technical resources

- Case studies simulated on computers
- Analyze the main corporate financial statements issued by Oil & Gas companies
- Cost estimation of Exploration & Production projects

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

UPSTREAM ECONOMICS

MODULE 1: OVERVIEW OF OIL & GAS CHAIN — 5 days

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International energy scene. Upstream economics. Oil trading. Downstream economics.

MODULE 2: INTRODUCTION TO RESERVOIR ENGINEERING — 5 days

Reservoir engineering. Resevoir charterisation & production.

MODULE 3: INTRODUCTION TO PETROLEUM ENGINEERING — 5 days

Surface facilities. Oil & gas processing.

MODULE 4: NATURAL GAS CHAIN ECONOMICS — 5 days

Natural gas scene. Structure and costs of natural gas chain. Long-term gas contracts and LNG. Different gas markets and strategies of actors. Gas spot markets and futures.

MODULE 5: TRADING OF CRUDE OIL & PETROLEUM PRODUCTS — 5 days

Differentiation of crude oil - Price setting. Finished oil products. Trading and price setting. Trading of oil products-contracts.

MODULE 6: CONTRACTUAL & FISCAL FRAMEWORK OF EXPLORATION-PRODUCTION — 5 days

Legal framework. Contractual and fiscal framework. Main clauses of petroleum contracts.

MODULE 7: JOA & NEGOTIATION OF E&P PATRIMONIAL CONTRACTS — 5 days

Association agreements. Methodology of negotiation. Simulation: negotiating a PSC.

MANAGEMENT OF UPSTREAM ASSETS

MODULE 8: ESTIMATION & COST CONTROL — 5 days

Context of upstream projects. Project cost estimation methodology. Cost control.

MODULE 9: ECONOMIC EVALUATION OF EXPLORATION & PRODUCTION PROJECTS — 5 days

Economic criteria. Economic costs analysis. Equity profitability analysis and project funding. Risk analysis of Exploration-Production projects.

MODULE 10: PROJECT MANAGEMENT — 5 days

Introduction to preliminary studies. Feed or basic engineering studies. Project control and administration. HSE and quality management. Detail studies and procurement. Construction.

MODULE 11: UPSTREAM ACCOUNTING & FINANCIAL MANAGEMENT — 5 days

Accounting standards. Consolidated financial statements. Reporting (board). Financial analysis. Introduction to audit and financial reporting.

MODULE 12: UPSTREAM CONTRACTS AUDITS — 5 days

Contractual accounting. Association auditing. Government auditing. Implementing a contractual auditing.

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Training - Upstream Economics and Management

EAM-EN-P | Face-to-face only | 10 days

This training aims to provide participants with a clear view of the contractual and economic framework of Exploration & Production in order to apprehend the tools for decision making, financial management and auditing

Level

Knowledge

Public

Managers from the upstream sector who require a global picture of all the economic, financial and contractual aspects of exploration and production activities

Objectives

Attendees will be able to implement the following skills:

- Evaluate all aspects of taxation and the contracts used
- Build advanced economic models for the economic evaluation of projects
- Analyze the economic results and conduct sensitivity analysis
- Incorporate the geological risks and uncertainties in the economic evaluation of projects
- Analyze the main corporate financial statements (profit/loss and balance sheets) issued by oil companies

Pedagogical & technical resources

- Case studies simulated on computers
- Development of an oil field (under concession and production sharing agreements)
- Acceleration of a production project with or without EOR
- LNG plant project with specific financing
- Impact of “ringfencing” and the state participation in the decision making process
- Valuation of a decision to acquire information (seismic or drilling)
- Pricing of an exploration block
- Analysis and construction of balance sheets, income statements and key financial statements of an Oil & Gas company
- Examples of petroleum laws & fiscal regimes around the world (Northwestern Europe, North Africa, West Africa, Middle East, Asia-Pacific, etc.)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

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Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: UPSTREAM PROJECT ECONOMICS (5 DAYS)

UPSTREAM ECONOMIC ENVIRONMENT

Economic development of the upstream sector.
Various actors in Exploration-Production and their strategies. Oil markets and prices.
Current Exploration and Production activities.
Levels of investment.
Examples of finding, development and production costs.

CONTRACTUAL & FISCAL ENVIRONMENT

General principles of oil tax systems.
Legal framework: concessions agreements, production sharing contracts, service contracts.
Impact of various contractual and technical parameters.
Sharing of the economic rent between the State and oil companies. Economic flexibility.
Legal aspects of joint ventures.
Main legal provisions in a Joint Operating Agreement (JOA).

ECONOMIC EVALUATION OF E&P PROJECTS

Cost of capital and discount rate, value creation.
Economic criteria for project evaluation: net present value (NPV), internal rate of return (IRR), payback period, etc.
Global profitability analysis, the impact of taxation and inflation on economic indicators.
Case studies: development of an oil field (under concession and production sharing agreements).

IMPACT OF FINANCING ON PROJECT ECONOMICS

Financing Oil & Gas projects, project finance and B.O.T. structures.
Various financing plans and debt repayment.
Analysis of equity cash flows, return on equity capital, financial leverage.
Case studies: development of an oil field under concession with specific financing.

RISK ANALYSIS OF E&P PROJECTS

Introduction to risk analysis and risk discount rate: sensitivity analysis, Spider and Tornado diagrams.
Probability of success, economic risk analysis in oil exploration.
Economic study of an exploration project using Min, Mode and Max scenarios.
Impact of “ringfencing” and the state participation in the decision-making process.
Case studies: valuation of a decision to acquire information (seismic or drilling) and pricing of an exploration block.

MODULE 2: UPSTREAM ACCOUNTING & FINANCE (5 DAYS)

FINANCIAL MANAGEMENT OBJECTIVES

Shareholder expectations.
The different aspects of financial management.
Reporting requirements.

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GENERAL ACCOUNTING, THE FOUNDATION OF FINANCIAL MANAGEMENT

Accounting principles and standards.
Financial statements and consolidated accounts.

SPECIFICS OF UPSTREAM OIL ACCOUNTING

Mining rights, exploration, depreciation (UOP).
Impairment of assets, provision for decommissioning and site restoration.

ANALYSIS OF ORGANISATIONAL PERFORMANCE: FINANCIAL ANALYSIS

Financial analysis plan.
Analysis of margins, investments, Working Capital, financial structure and profitability.

DAY-TO-DAY FINANCIAL MANAGEMENT: COST ACCOUNTING

Objectives and methods. Cost allocation.
Management charts and variance analysis.

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Training - Economics and Risk Analysis of Upstream Projects

EAR-EN-P | Face-to-face only | 5 days

To provide participants with an in-depth understanding of the tools used in economic analysis and decision-making tools within the upstream industry

Level

Skilled

Public

Engineers, economists and project managers who need to extend their understanding of the specific methods used to evaluate Exploration-Production projects

Objectives

Attendees will be able to implement the following skills:

- Carry out investment profitability studies including all aspects of complex fiscal terms, inflation, and financing
- Analyze the economic results and carry out sensitivity analysis
- Incorporate the geological risk and uncertainty in the economic evaluation of Exploration & Production projects
- Develop advanced computer models for the study of Oil & Gas development projects

Pedagogical & technical resources

Case studies simulated on computers:

- Development of an oil field (under concession and production sharing agreements)
- Impact of “ringfencing” and the state participation in the decision-making process
- Valuation of a decision to acquire information (seismic or drilling)
- Pricing of an exploration bloc

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

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Responsable

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Program

ECONOMIC & CONTRACTUAL FRAMEWORK OF E&P — 1 day

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Various phases of Exploration-Production.
Technical cost, evolution of the economic environment.
Petroleum Exploration and Production contracts.
Concessions, production sharing contracts, service contracts.
Sharing of the economic rent, economic flexibility in petroleum contracts.
Economic clauses.

INVESTMENT PROFITABILITY STUDIES — 2 days

Cost of capital and discount rate, value creation.
Economic criteria for project evaluation: net present value (NPV), internal rate of return (IRR), payback period, etc.
Global profitability analysis, the impact of taxation and inflation on economic indicators.
Specific method to Exploration and Production: shadow interest.
Case studies: development of an oil field (under concession and production sharing agreements).
Introduction to risk analysis and risk discount rate: sensitivity analysis, Spider and Tornado diagrams.
Impact of “ringfencing” and the state participation in the decision-making process.

IMPACT OF FINANCING ON PROJECT ECONOMICS — 1 day

Financing Oil & Gas projects, project finance and B.O.T. structures.
Various financing plans and debt repayment.
Analysis of equity cash flows, return on equity capital, financial leverage.
Case studies: development of an oil field under concession with specific financing.

RISK ANALYSIS OF E&P PROJECTS — 1 day

Probability of success, analysis of economic risk in oil exploration.
Evaluation of exploration projects and decision trees.
Farm in/Farm out.
Risked and unrisked economics.
Case study: economic study of an oil project including Min, Mode and Max scenarios.
Evaluation of development projects.
Economic risk associated with a marginal development.
Decision trees and subjective probabilities, decision theory.

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Training - Downstream economics and management

EAVC-EN-P

Face-to-face only

60 days

This training is part of a professional carrier development to managerial positions in dowstream business, requiring specific skills in refining economics, linear programming, oil trading, logistics and finance, and auditing downstream activities

Level

Knowledge

Public

Executives from the downstream sector who require a global picture of all the technical, economic, financial, contractual & audits of downstream business activities

Objectives

Attendees will be able to implement the following skills:

- Explain the roles of the various refining units, their interdependence and the operating conditions of the main units
- Identify the economic issues and the main parameters influencing refinery profitability
- Design and use refinery management and optimization tools to increase productivity
- Identify the interactions between the petrochemical sector and other oil sectors
- Appreciate the various risks associated with trading petroleum products
- Analyzing the economic aspects of a logistics chain
- Analyze a company's accounting publications
- Analyze economic results and carry out sensitivity studies

Pedagogical & technical resources

- Case studies simulated on computers
- Analyze the main corporate financial statements issued by Oil & Gas companies
- Cost estimation of downstream projects

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

PART I: BACKGROUND AND FUNDAMENTALS OF THE OIL CHAIN (10 DAYS)

MODULE 1: INTRODUCTION TO EXPLORATION-PRODUCTION — 5 days

Reservoir engineering. Well intervention. Surface facilities.

MODULE 2.A: OVERVIEW OF OIL & GAS CHAIN — 3 days

International energy scene. Upstream economics. Oil trading. Downstream economics.

MODULE 2.B: CASE STUDIES — 2 days

Based on a set of up-to-date documents (reports, articles, contracts) related to refining business, participants work in sub-groups to prepare a presentation.

PART II: TECHNICAL AND ECONOMIC FRAMEWORK OF DOWNSTREAM ACTIVITIES (20 DAYS)

MODULE 3: FUNDAMENTALS OF REFINING & PETROCHEMICALS — 5 days

Refining processing. Petroleum product quality. Refining schemes.

MODULE 4: ECONOMIC FRAMEWORK OF DOWNSTREAM ACTIVIVES — 4 days

Global refining markets. Refining margins. Downstream economics.

MODULE 5: LINEAR PROGRAMMING — 3 days

Optimization. Excel Solver. Linear programming models.

MODULE 6: PETROCHEMICAL ECONOMICS — 3 days

Petrochemical process. Petrochemical markets & economics.

MODULE 7: OIL STORAGE FACILITIES — 5 days

Petroleum products. Atmospheric storage. Control & risk management.

PART III: DOWNSTREAM OIL TRADING & CONTRACTUAL FRAMEWORK (15 DAYS)

MODULE 8: OIL PRICES TRANSMISSION MECHANISMS — 5 days

Main factors influencing the price of crude oil and petroleum products. Macroeconomic factors on crude and product prices.

MODULE 9: TRADING OF CRUDE OIL & PETROLEUM PRODUCTS — 5 days

Differentiation of crude oil - Price setting. Finished oil products. Trading and price setting. Trading of oil products contracts.

MODULE 10: DOWNSTREAM LOGISTICS — 5 days

Technical aspects of logistics. Economic aspects of a logistics chain.

PART IV: ECONOMIC ANALYSIS OF DOWNSTREAM OIL PROJECTS (15 DAYS)

MODULE 11: DOWNSTREAM ACCOUNTING & FINANCIAL MANAGEMENT — 5 days

Accounting standards. Consolidated financial statements. Reporting (board). Financial analysis.

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MODULE 12: DOWNSTREAM AUDITING — 5 days

Introduction to audit and financial reporting. Implementing a contractual auditing.

MODULE 13: PROFITABILITY ANALYSIS OF DOWNSTREAM PROJECTS — 5 days

Economic criteria. Economic costs analysis. Equity profitability analysis and project funding. Risk analysis of downstream projects.

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Training - Downstream Economics and Management

EAV-EN-P | Face-to-face only | 15 days

This course provides participants a complete view of the economic principles of the downstream sector as well as the methods necessary for the decision-making processes

Level

Knowledge

Public

Professionals from the refining, the petrochemicals and the distribution sectors in a management position where they need to deepen their understanding of all the essential economic aspects as well as the management tools used in the oil downstream sector

Objectives

Attendees will be able to implement the following skills:

- Analyze the economic fundamentals of the energy scene, with an awareness of the importance of market dynamics and its impact on the downstream oil economy
- Explain the resource/output balances of the refining industry
- Design and use the management and optimization tools of a refinery to increase its productivity
- Understand the elaboration of oil contracts and their clauses
- Understand the meaning of the terms used in the contracts and their operational, legal and financial scope
- Estimate the economic values of the various intermediate or semi-finished products
- Evaluate the economic profitability of a project
- Set up a logistic scheme and master different supply modes
- Analyze the technical and economic aspects of a logistics chain
- Identify and analyze the possible synergies between refining and petrochemicals
- Explain the economic stakes and the main parameters influencing the profitability of these sectors

Pedagogical & technical resources

- Numerous case studies and group exercises
- Use of spreadsheets and the Excel solver (especially for economic optimizations and cash flow schedules)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the

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specific needs of learners from the professional world

Program

TECHNICAL-ECONOMIC FRAMEWORK OF THE OIL FLOW — 2 days

Fundamentals of supply and demand of crude oil and products
Refining supply: overcapacity, types and quantities produced.
Main issues: deep conversion, new product specifications, integration of petrochemicals, environment, etc.
Technical reminder of the main refining units: distillation, conversion, blending, etc.
Evolution of refining schemes.
Planning of supply, crude arbitrage, product quality, etc.
From monthly schedule to (daily) scheduling.
Refining costs and margins.
Optimization of margins from different units.
Case study: Valuation of intermediate products from a FCC (Fluid Catalytic Cracking) unit.

MARKETS & CONTRACTUAL FRAMEWORK FOR PETROLEUM PRODUCTS — 3 days

Price determination: market equilibrium (supply/demand) and its implications, trade-offs
Main parameters influencing the price of a crude oil or the price of a petroleum product
Presentation of the physical and financial markets
Methodology and role of reporting agencies: Platt's, Argus...
Notion of product, benchmark crude
Maritime transport component and estimation of the cost of maritime transport (use of "worldscale")
Review of the main types of chartering (voyage, time charter, bareboat...)
Roles and responsibilities of independent inspection companies
On board binder
Organization of a trading room.
Roles and responsibilities of each "office" (front-office, middle-office, back-office)
Functional review (legal, audit...) of contracts, review of Incoterms
Negotiation and drafting of a contract
Main clauses and their implications: Operational (laycan, laytime, NOR, demurrage), Financial (payment terms, credit limit, L/C (letter of credit), silent cover...), Customs, fiscal, legal (safeguard clause, force majeure clause...)
GT&C's (General Terms & Conditions) and risk assessment of each clause
Follow-up of the contract
Case studies: Purchase/sale of crude oil and products; hedging strategies

LINEAR PROGRAMMING — 2 days

Linear equations, preparation of a matrix.
Objective function, profit maximization or cost minimization.
Optimization of refining operations: Simplex method, graphical interpretation.
Analysis of linear programming results: properties of the optimum, validity domain of the results, marginal costs.
Sensitivity analysis.
Case study: construction of a refinery model matrix (material balances, product specifications, energy balance, objective function, etc.); group work on the optimization of a refinery operation.

INVESTMENT PROFITABILITY STUDIES — 3 days

Value creation and cost of capital, cash flow, discounting principle and impact of inflation.
Difference between income statement and cash flow. Key performance ratios at the corporate level.
Development of cash flow schedules: differences between income statement and cash flow, taking into account taxation, impact of working capital requirements, valuation horizon.
Economic evaluation criteria: Net Present Value (NPV), Internal Rate of Return (IRR), payback time, financial exposure, profitability index. Impact on project profitability.

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Introduction to risk analysis: Identification and consideration of risks (PESTLE analysis, risk premium), sensitivities ("Tornado", "Spider" graphs), scenarios.
Project financing and return on equity.
Exercises:

- Calculating the WACC of a company.
- Calculating the Impact of working capital on a polypropylene plant project.
- Profitability analysis of a Petrochemicals plant.
- Profitability analysis of a Bio refinery (ungeared and geared).

SUPPLY CHAIN MANAGEMENT — 3 days

Supply chain fundamentals
Mechanisms of inventory management: specifics, types of flows, inventory diagrams, lead times, product seasonality, impact of specification changes
Technical aspects of storage and transportation: underground and overhead storage, inventory measurement, losses, facility security, pipelines, safety stocks
Economic aspects of the logistics chain: costs, role of warehouses, sizing, investments, maintenance, contracted transportation
General and contractual characteristics of maritime transport
Benchmarking: performance indicators, operational optimization, economic optimization.
Case study: Analysis of a company's supply chain.

REFINING & PETROCHEMICALS SYNERGIES — 2 days

Main petroleum products and petrochemicals: reminder of key specifications.
Refining schemes vs. petrochemical schemes.
HSE specificities of refining (H2S, etc.) and petrochemicals (product instability, etc.)
Synergies of utilities exchanges (H2, gas, fuel oil)
Synergies of supplies: ethane, LPG, naphtha, atmospheric gas oil, vacuum distillate
Product exchanges (pyrolysis, olefins)
Joint processing of aromatic cuts and pooling of services
Refining vs. petrochemical margins and costs: gains from synergies
Case study: economics of a refinery, a steam cracker and the integration of the two using some synergy points.

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Training - Equipment Basic Maintenance

EBM-EN-P | Face-to-face only | 5 days

To provide in-depth knowledge related to the equipment technology and maintenance

Level

Knowledge

Public

Engineers from various disciplines: process, maintenance, operation, mechanical, inspection, HSE and supervisors

Objectives

Attendees will be able to implement the following skills:

- Recognize basics of the technologies of rotating machinery and static equipment installed on plants
- Describe the operating principle of this equipment
- List the basic maintenance practices, and reliability criteria

Pedagogical & technical resources

- Sharing of participants' best practices
- Numerous exercises
- Applications and case studies
- Visit of running plant or workshop if available

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASICS IN STATIC EQUIPMENT — 1.5 days

Different types of piping valves and flanges types, valve types, safety valves and rupture discs, standards main failure modes and repairs
Distillation columns: operating principle; technology, fundamentals.
Different types of heat exchangers and vessels: technology, selection criteria.
Furnaces and boilers: operating principle; technology, control and safety features.

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Tanks: different types of storage tanks: fixed and floating roof, etc.
Case studies, exercises and applications.

ROTATING EQUIPMENT — 2.5 days

Centrifugal and positive displacement pumps: types, technology and selection criteria.
Centrifugal and positive displacement compressors: types, technology and selection criteria; operation.
Steam turbines and gas turbines: types, technology; operation and maintenance.
Basic machinery reliability, maintenance and troubleshooting.
Auxiliaries, lubrication and maintenance of rotating equipment.
Risks and failures dealing with these types of rotating equipment.
Preventive and corrective maintenance.
Vendor recommendations vs. operating constraints.
Case studies, exercises and applications.

MAINTENANCE GENERAL PRACTICES — 1 day

Types of maintenance: preventive, corrective, condition-based.
Fundamentals of reliability analysis and improvement methods: FMECA: failure modes, effects and their criticality analysis, failure trees, Reliability Centered Maintenance (RCM).
How to use Key Performance Indicators to measure, evaluate and enhance equipment performances.

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Training - Centrifugal Compressors

ECC-EN-P | Face-to-face only | 5 days

This course emphasizes the technology, the performance and operation of centrifugal compressors

Level
Skilled

Public
Engineers and technicians involved in operation, monitoring and maintenance of centrifugal compressors

Objectives
Attendees will be able to implement the following skills:

- Explain the construction technology of a centrifugal compressor
- Explain the influence of operating parameters on the performance of a compressor
- Describe the most common flow control modes and anti-pumping controls
- Describe typical incidents and critical points to monitor

Pedagogical & technical resources

- Case studies based on industrial feedback
- Interactive course
- Various technical drawings of actual compressors
- Use of a dynamic simulator

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNOLOGY — 1.25 days

Different types of centrifugal compressors. Architecture of a centrifugal compressor.
Technology of the main components: stator, rotor, bearings, thrust bearing, seals.
Vibrations, critical speed, dynamic balancing. Auxiliary equipment: lubrication system, buffer gas, balancing line, etc.

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Safety devices: axial displacement, vibrations, bearing and thrust bearing temperatures, oil pressure, etc.

PERFORMANCES — 1.75 days

Changes in gas velocity and pressure in a centrifugal compressor.
Mass and volume flow rate as a function of pressure, temperature and gas composition.
Discharge temperature, power absorbed as a function of the gas composition and the operating conditions.
Compressor performance: influence of process parameters, impeller velocity and geometry.
Characteristic curves of the circuit and the compressor.
Influence of the operating conditions: inlet pressure and temperature, gas composition, rotation speed.

OPERATION — 0.5 day

Flow rate control. Adaptation to service conditions.
Surge and antisurge devices. Standard control. Start-up and shutdown.
Monitoring the compressor and auxiliary equipment during operating conditions. Troubleshooting and safe operation.

DYNAMIC SIMULATION - APPLICATIONS — 1.5 days

Use of a dynamic process simulator.
Exercises on start-up and shutdown phases.
Applications using disturbances generated by the lecturer.

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Training - Energy and Climate Change

ECCL-EN-P | Face-to-face only | 2 days

This training will enable participants to better understand the evolution of the energy mix and the pros and cons of various alternative energies. An overview of the main regulatory and fiscal mechanisms introduced, as well as the evolution of green finance, complete this curriculum in order to address the issue of energy transition from a technical, economic and societal perspective

Level

Knowledge

Public

- Private sector personnel responsible for strategic planning, market analysis (regulation mechanisms and price creation), energy procurement, financing and management of energy projects to anticipate technical constraints, to understand the risks (economic, legal, technical, environmental, geopolitical)
- State organisation in charge of energy policy choices, subsidies and/or promotion, as well as those in charge of missions within administrations and local authorities

Objectives

Attendees will be able to implement the following skills:

- raise awareness of the global challenges of the energy transition and analyse the long-term changes in the energy mix and its impact on climate change
- understand public policies, their impact on the environment and understand the global societal challenges of renewable energies

Pedagogical & technical resources

- Quiz on the different renewable energies
- Videos
- Case study
- Examples of practices in various countries

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

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WHY MAKE AN ENERGY TRANSITION NOW? 1 day

Evolution of the energy scene: myths and realities:

- Energy as a resource to be shared: the changing energy landscape up to 2050.
- Energy demand and economic growth.
- Theory and threat of global warming, growth of CO2 and GHG emissions.
- Problems of energy access.
- The new geopolitical challenges associated with renewables: emissions reduction, security of supply and competitiveness.

Environmental impacts and climate change challenges:

- International negotiations on climate and the environment: history and prospects.
- Diversity of public action: environmental policy tools.
- Energy demand and economic development: principles of sustainable development and the circular economy.
- Prospects for alternative mobility (electric, gas, hydrogen, biofuels) and challenges of electromobility.

Techno-economic and financial instruments for environmental management:

- The levers of a controlled transition.
- Green finance.
- Energy efficiency.
- Carbon taxation to control CO2 emissions.
- Footprint indicators.

FUTURE SOLUTIONS TO DECARBONATE THE ENERGY MIX 1 day

Overview of renewable energies: solar, wind, hydraulic and marine energy, geothermal, hydrogen, biogas and biomass:

- Technical characteristics of the different energies, advantages and limitations.
- Evolution of production costs.
- New development trends.
- Innovations behind new modes of production and consumption.
- Associated environmental risks.
- Economic challenges - Competitiveness of renewables.

Problems of energy storage:

- Intermittent source management.
- Distributed generation systems.
- Network integration.
- Smart grids.
- Power to gas.

Stakes of the CO2 capture and storage sector.
The place of nuclear power in the energy transition.

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Training - Overview of CO2 Economics

ECO2-EN-P | Face-to-face only | 2 days

As the energy transition accelerates, businesses must adapt to increasingly stringent requirements for reducing carbon emissions—often at a significant cost. This training aims to provide a comprehensive overview of the economic aspects related to CO_2. Participants will gain a deeper understanding of the role of carbon pricing, carbon finance, and government policy in shaping decarbonization strategies, as well as the impact of Carbon Capture, Utilization, and Storage (CCUS) in this evolving landscape

Level

Knowledge

Public

Professionals seeking to broaden their understanding of CO_2 economics and its implications for business and policy

Objectives

Attendees will be able to implement the following skills:

- Explain the carbon pricing mechanisms, their effectiveness in reducing emissions, and key examples of implementation worldwide.
- Assess the cost of carbon abatement associated with Carbon Capture, Utilization, and Storage (CCUS).
- Analyze the influence of regulatory and policy frameworks on carbon pricing, carbon finance, and the deployment of CCUS technologies.

Pedagogical & technical resources

- Quizzes.
- Case Studies.
- Exercises.
- Group discussions.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic understanding of economics and working proficiency in Microsoft Excel.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION — 0.25 day

Carbon emissions and their impact on the environment.
The Paris Agreement and the energy transition.

CARBON PRICING — 0.5 day

Carbon pricing mechanisms: carbon taxes vs. cap-and-trade systems.
Examination of different implementations worldwide, including EU ETS.
Evolution of carbon markets.
Carbon leakage and the Carbon Boarder Adjustment Mechanism (CBAM).
Carbon credits/offsets.
Article 6 of the Paris Agreement.
Group discussion.

CARBON ABATEMENT OPTIONS — 0.75 day

The cost of carbon abatement.
The economics of Carbon, Capture, Utilization and Storage (CCUS).

- CCUS value chain: examining the cost and feasibility of each part of the value chain.
- CCUS business models.
- CCUS projects and development outlook.

Case study and practical exercise.

CARBON FINANCE — 0.25 day

The role of financial institutions in reducing carbon emissions.
Green bonds and green loans.
The role of carbon accounting in financial reporting and strategic decision making.
Case study and practical exercise.

REGULATROY AND POLICY FRAMEWORKS — 0.25 day

Impact on CCUS, carbon pricing mechanisms and carbon finance.
Incentives and penalties.
Review of different approaches taken around the world.

Sessions

Rueil-Malmaison - From 11/17/2026 to 11/18/2026 — **2270 €/HT**

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Training - Reciprocating Compressors

EECV-EN-P | **Face-to-face only** | **5 days**

This training improves participants' skills on technology, operation and maintenance of reciprocating compressors

Level
Skilled

Public
Engineers and technicians involved in the operation, inspection and maintenance of reciprocating compressors

Objectives
Attendees will be able to implement the following skills:

- List the different parts of a compressor and explain their characteristics
- Explain the evolution of compressor operating parameters
- Implement appropriate monitoring for each type of compressor
- Be involved in troubleshooting activities

Pedagogical & technical resources

- Actual examples from the Oil & Gas and petrochemical industries
- Trainee participation is continuously encouraged through case studies selected by the lecturer or proposed by the trainees
- Use of a dynamic simulator (start-up/shutdown, general operation, disturbances/troubleshooting)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNOLOGY — 1.5 days

Construction and design philosophies.
Components of reciprocating compressors: frame, cylinders, piston and rings, piston rod and crank head, crankshaft and connecting rods, bearings, compartment distance piece, specific emphasis on valves.
Auxiliary systems: pulsation dampeners, frame lube oil circuit, cooling systems, forced feed lubricator.

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Safety devices.

PERFORMANCES — 1 day

Ideal gas compression: discharge temperature, power.
Actual compression: valve behavior, leakages, internal thermal exchanges.
Indicator diagram.
Efficiency, compression power.
Case studies: discharge temperature and power calculation, indicator card plotting, efficiency calculation.

COMPRESSOR PROCESS OPERATION — 0.5 day

Start-up, shutdown. Performances control.
Influence of compression ratio, gas composition and suction temperature.
Multistage compressors.
Case study: air compression.

MAINTENANCE & TROUBLESHOOTING — 1 day

Machine monitoring: noise, vibration and temperature.
Typical defects and failures on: valves, piston rings and packings, piston rod...
Dismantling and assembly procedures and reports.
Safety devices and prevention.
Case studies: typical failures on reciprocating compressors.

DYNAMIC SIMULATION - APPLICATIONS — 1 day

Use of a dynamic simulator.
Exercises on start-up and shutdown phases.
Applications using disturbances generated by the lecturer.

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Training - Liquefied Natural Gas Economics

EGL-EN-P | Face-to-face only | 3 days

This training provides an overview of the economic and contractual aspects of the LNG (Liquefied Natural Gas) value chain

Level

Knowledge

Public

Professionals from the oil, gas or power industries or from the banking, insurance, and consulting sectors who need to understand LNG activities and their economic stakes

Objectives

Attendees will be able to implement the following skills:

- Identify the main LNG markets and their evolution
- Evaluate the economics of each part of the LNG value chain and the profitability for investments in the LNG industry
- Analyze the basic structure of LNG contracts

Pedagogical & technical resources

- Quizzes
- Videos
- Examples of contracts
- Exercises on LNG contracts

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GLOBAL GAS SCENE & LNG MARKETS — 1 day

Natural Gas uses, reserves, supply and demand.
New outlets for LNG (retail LNG).
International gas trades and importance of the LNG.

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Evolution of the LNG trading and pricing.
Main LNG markets: America, Europe and Asia (mature markets: Japan and South Korea and emerging markets: China, India...).
Risks for the different LNG actors: liquefaction, shipping, portfolio players, buyers...
Unconventional gas and its impact on LNG markets.

TECHNICAL & ECONOMIC ASPECTS OF THE LNG CHAIN — 1 day

LNG: properties and specifications.
Design of the different parts of the LNG chain.
Liquefaction plants, LNG tankers, regasification terminals.
Main projects of LNG terminals in the world and their exploitation.
Capital expenditures and operating costs.
Economic evaluation of a LNG project.
Business structures of LNG projects:

- Classical “Buy/Sell” model.
- Processing model.

New trends in the LNG industry:

- Floating concepts: FLNG, FSRU.
- Small scale LNG.

LNG CONTRACTS — 1 day

Main features and important articles in LNG contracts.
LNG pricing: price formulae, indexation and net-back value.
Tolling agreements.
Impact of gas markets liberalization and third-party access to regasification terminals.
Coexistence between long-term contracts and short-term contracts.

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Training - Overview of Natural Gas Economics

EGN-EN-P | Face-to-face only | 4 days

This training provides an overview of the economic and contractual aspects of the natural gas value chain, all the way from production and transport to marketing

Level

Knowledge

Public

- Professionals with experience in the oil industry who now need to broaden their understanding and knowledge of the natural gas business.
- Professionals from other sectors, such as banking or government, that require an understanding of the natural gas business to better assist their clients are also welcome to attend

Objectives

Attendees will be able to implement the following skills:

- Evaluate the importance of natural gas in the world energy balance, and the strategies of the main industry actors
- Identify the outlets of natural gas and the new trends in gas industry
- Identify the main technical, economic and contractual features of the natural gas value chain, from the production well to the final consumer
- Explain the framework of liberalization of natural gas markets and its impact on gas contracts and prices

Pedagogical & technical resources

- Quizzes
- Exercises on the costs of gas infrastructures
- Examples of contracts and calculations on quantities
- Videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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GLOBAL GAS SCENE — 0.75 day

Importance of natural gas in the world energy balance.
Outlets for natural gas.
Reserves, production, development zones.
International gas markets.
Impact of unconventional gas on the world demand/supply and on gas prices.

STRUCTURE & COSTS OF THE NATURAL GAS CHAIN — 0.75 day

Description of the gas chain and associated costs.
Gas treatment and transportation.
Storage costs and distribution costs.
Liquefied Natural Gas (LNG), FLNG, FSRU, small scale LNG.

LONG-TERM NATURAL GAS & LNG CONTRACTS — 1 day

Contractual framework of Exploration-Production.
Structure and principles of a long-term contract.
Principles of take-or-pay, netback, indexation and gas price formulas.
Tolling agreements.

SPOT, FORWARD & FINANCIAL MARKETS — 0.5 day

Spot and forward natural gas markets.
Why and how to access those markets?
Prices in the different markets.
Financial contracts, hedging strategies and examples.

GAS MARKETING IN A LIBERALIZED MARKET — 1 day

Drivers and concepts of liberalization.
Principles of the EU gas directive, progress in various countries, take-or-pay issues.
Role of the regulator, network development, transport, tariffs, etc.
Contractual aspects between suppliers, transporters and distributors.

Sessions

Rueil-Malmaison - From 10/13/2026 to 10/16/2026 — **3380 €/HT**

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Training - E&I Technology for Oil and Gas Facilities

E&I-EN-P | Face-to-face only | 5 days

Provides the basic knowledge for electrical & instrumentation equipment used in the Oil & Gas industry

Level

Knowledge

Public

Personal working in the Oil & Gas industry, needing overview on E&I

Objectives

Attendees will be able to implement the following skills:

- Identify electrical and instrumentation equipment used in Oil & Gas
- Acquire the technological knowledge necessary to understand the control and safety schemes

Pedagogical & technical resources

Demonstration (illustration) of process control on dynamic simulator (IndissPlus de CORYS)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ELECTRICAL & ELECTROTECHNIC BASICS — 1.5 days

Generalities: origin of electricity, electrical energy production, alternate and direct currents, the electrical circuits. Standards, symbols, different types of electrical drawings.
Electrical generation: alternator, coupling of sources and throughput on structured networks.
Equipment monitoring and maintenance.
Electrical networks: constitution of an HV and LV network, architectures and equipment. Constituents: HV & LV boards and cabinets. Transformers. Breakers, control elements and isolation. UPS and batteries. Protections.
Asynchronous motors: constitution and operation of three-phases AC electric motors. Electric motor-related equipment.
Electrical risks: hazards in the electrical installations. Effects and consequences of the electrical risks. Protection against the electrical risks.

- Hazardous areas classification: current standards (API RP 500, European ATEX standards) and applications on Oil & Gas facilities. Protection and identification of the material set in hazardous area.

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FIELD INSTRUMENTATION — 2 days

Control loop: function and symbolization.
Field instrumentation: main technologies for measuring pressure, temperature, level, flow.
Automatic valves: technologies of control valves and on-off valves. Role of accessories: limit switches, solenoid valves, positioners...

CONTROL SCHEMES — 1 day

Single loop: structure and representation.
Control schemes: single loop, cascade, split-range. Case of overrides.
PID controller: control diagrams. Function, operation, direction of action and operating modes.
Automatism: distributed control systems. Operation of a controller, operator interface, network architecture.

SAFETY INSTRUMENTED SYSTEMS (SIS) — 0.5 day

Identification of Safety Instrumented Systems.
Fire and gas sensors: main technologies and applications.
Different safety systems and architecture.

Sessions

Pau - From 10/12/2026 to 10/16/2026	**4360 €/HT**
Pau - From 10/11/2027 to 10/15/2027	**4460 €/HT**

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Training - Electrical Motors: Technology, Operation and Maintenance

EIMEA-EN-P | **Face-to-face only** | **5 days**

This course focuses on the technical development of industrial electrical motors

Level
Skilled

Public
Electrical and mechanical engineers, supervisors, technicians involved in electrical motors maintenance and operation

Objectives
Attendees will be able to implement the following skills:

- Explain how electric motors work
- List the main malfunctions
- Specify the diagnostic tools in use
- Explain repair and inspection techniques

Pedagogical & technical resources

- Visit of a motor repair workshop
- Interactive course
- Motor disassembly and assembly in case of an available workshop

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OPERATION PRINCIPLE & TECHNOLOGY — 2 days

Working principle of induction and synchronous motors.
Features: power, current, torque and power factors.
Technology and main parameters.

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Protective modes in regards with external environments: temperature classes, protection class index, hazardous area motors, ATEX protection.
Electrical and thermal protection of the motor as well as the use of temperature sensors.
API 541 asynchronous guidelines for refinery and petrochemical motors.
Efficiency motor's standards IEC 60 034-30/IEEE 112.

VARIABLE SPEED FEATURES — 1 day

Power and HV/LV range, fields of use and typical applications.
Speed and motor control as well as network consequences. Synchronous motor: torque control and various technologies.
Induction motor: standard starting methods depending on mechanical load, motor power and network capacity; limiting conditions due to the grid; number of start constraints. Electronic starting method (soft starter).

INSTALLATION — 0.5 day

Main characteristics and constraints for a motor installation.
Skid and shim. Shaft alignment. Comparison to reference datasheets. Vibration footprint.

FAILURE DIAGNOSIS IN OPERATION — 0.5 day

Bearings: temperature, vibration, lubrication monitoring.
Mechanical failures.

CONTROL & REPAIR TECHNIQUES - PRACTICAL WORK — 1 day

Part identification in workshop.
Bearings assembly, housing repair, clearance and run-out checks.
Electrical insulation and phases balancing checks.
Impact of frequency inverters and harmonics on electrical coils insulation and the bearings.
Coil insulation repairs: vacuum coils impregnation, technology and quality. Rewinding and coils positioning according to magnetic circuit's notches. Electrical checks (electrical resistance, insulation, polarization...).
Balancing: quality standards, unload and load tests. Repair specification: specification content as well as work acceptance.
Visit of a motor repair workshop (when possible).

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Training - Energy Efficiency and Low Carbon Strategy, Industrial Solutions

ELCS-EN-P | **Face-to-face only** | **5 days**

As part of adapting their activities to the energy transition, industrial companies, particularly oil and gas firms, will need to manage CO_2 emissions and actively participate in the energy transition. This training focuses on the main challenges industries will face, both in transitioning to low-carbon energy consumption and in increasing energy efficiency. These companies will need to integrate new energies (renewables, hydrogen, etc.) into their energy mix. Furthermore, CO_2 economics must be considered when implementing their low-carbon plans

Level

Knowledge

Public

Industrial operators and national (NOC) or international (IOC) oil and gas companies. It is suitable for technical managers as well as executives and managers at all levels.

Objectives

Attendees will be able to implement the following skills:

- Integrate the new energy landscape with strategies to reduce carbon footprint
- Understand the evolution of the renewable energy sector and opportunities in this field
- Assess energy efficiency and manage its improvement potential
- Develop CCS and CCUS opportunities in future or existing projects
- Implement a roadmap for decarbonizing industrial facilities considering CO2 economics

Pedagogical & technical resources

- Questionnaires
- Team games
- Case studies
- Calculations using economics and KPIs

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

GLOBAL ENERGY LANDSCAPE — 0.5 day

Energy basics: definitions, characteristics, units, conversion factors, orders of magnitude.
Oil chain: technologies, supply and demand, prices, reserves, transition scenarios.
Gas chain: technologies, market players, producing and consuming countries, economic issues.
Case study: crude oil price.

CARBON, CLIMATE AND ENERGY STRATEGY — 0.5 day

Current scientific observations. Evolution of greenhouse gas emissions.
Other planetary environmental limits. Energy mix and CO_2 intensity of energy sources.
Case study: European energy mix. Energy trilemma concept.
Emission distribution by economic and geographic sectors. Oil & gas sector outlook in the energy transition: IEA scenarios, societal pressure, stranded asset risks.
Case study: production decline and oil investment pace.
Public actor mobilization, North-South debate, just transition concept.
Consumer mobilization. Global strategy for decoupling economic growth and carbon emissions. Debate and case study on transition scenarios.

DECARBONIZED INDUSTRIAL SOLUTIONS — 1 day

Global statistics review. Massive rise of renewables. Collapse of solar, wind, and battery costs. Shortened investment cycles, societal barriers, grid transmission impacts. Cross-over of global investment curves: green vs fossil energy.
Mixed results of a two-speed transition versus technologies and geographic sectors.
Overview of solar and wind energy. Presentation of main low-carbon sources: solar, wind, bioenergy, etc.
Case study: comparison of economic models for different electricity sources (solar, wind, gas). Economic concepts: capital cost, key performance criteria : net present value (NPV), internal rate of return (IRR), levelized cost of electricity (LCOE). Growth of competitive renewables without subsidies in the economic landscape. Practical examples.
Intermittency and energy storage: grid balancing constraints, technical and commercial challenges. Emerging solutions: hybrid projects, pumped hydro storage, utility-scale batteries. Emerging economic trends : new business models, emerging technologies, innovations.

CO2 ECONOMICS AND EMISSIVE INDUSTRIES — 1 day

State mobilization, carbon pricing markets (national/regional), European example. International economic implications, carbon market trends.
Industrial and economic actors mobilization. Corporate low-carbon strategies: role of carbon accounting (GHG Protocol). Case study for a SME, utilisation of ADEME database on emission factors in French economy. Key steps after carbon footprint assessment (emission reduction targets, action plan, integration into low-carbon strategy).
Target sectors, “hard-to-abate” industries, persistent supply-demand challenges. CCUS value chain: examples of CCS projects in Europe and the USA, costs trends, sectors applicability, impact of carbon footprint.
Technological and economic barriers to CCUS deployment, industry deployment status in France.
Hydrogen value chain: current supply and demand, hydrogen “colors” (grey, green, blue, etc.), technological and economic barriers to hydrogen economy.

LOW CARBON STRATEGY AND ENERGY EFFICIENCY — 1 day

Electrification of demand. Growth of low-carbon energy supply and electrification of demand across various sectors Case example of Global South and Sun Belt countries. Technological levers for global energy efficiency.
Gas vs renewables: competition and complementarity. Critical minerals challenge for energy transition. Environmental, economic, and geopolitical barriers.
Efficiency levers for residential, commercial, and industrial heat. Heat pump technology: residential, urban, industrial applications, technical limits. Regulatory and economic barriers.
Thermal storage technologies: practical examples and applications.

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LOW CARBON STRATEGY FOR THE OIL & GAS INDUSTRY — 1 day

Energy independence goals of importing countries as a transition driver. Impact of China's electric mobility revolution on fuel demand reduction. Oil & gas sector adaptation: examples from major companies, diverse strategic approaches.
The challenge of methane emissions and flaring reduction: differentiation by actors (majors, independents, NOCs, mining companies, utilities) and countries in their power to influence the outcome.
Emission management systems: typical emission reduction plan format for oil & gas companies.
Technological levers for operational optimization and facility design, flaring reduction, methane elimination, CCUS projects, energy efficiency, renewable energy use.
Examples and case studies with economic calculations.

Sessions

Rueil-Malmaison - From 12/07/2026 to 12/11/2026 — **4470 €/HT**

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Training - Introduction to Industrial Electricity

ELECBAS-EN-P | Face-to-face only | 5 days

This course provides an overview on industrial electricity; how it is generated and distributed in petrochemical plants

Level
Awareness

Public
Operators, supervisors and engineers from any department

Objectives
Attendees will be able to implement the following skills:
- List the fundamentals of electricity
- Identify equipment used for the grid
- Recognize electric motors and generators technologies
- List the electrical safety rules

Pedagogical & technical resources
- Numerous drawings and datasheets used in the industrial plants
- Daily quiz to reactivate the key points
- Practical exercises and case studies

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS IN INDUSTRIAL ELECTRICITY — 1 day

Characteristics of electrical power supply for industrial plants.
Principles of electrical distribution:
- Main technical characteristics of the electrical distribution and the grid. One line electric distribution diagram.
- Application: overall online diagram.

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SUBSTATION EQUIPMENT & SWITCHGEAR — 2 days

Purposes and use of these types of equipment.
Transformers: overall technology and troubleshooting.
Circuit breakers: technology and switchboard.
Operation and maintenance of main electrical equipment.
Electricity control system. Failures monitoring and corrective actions.
Electrical protections.

ELECTRICAL HAZARDS — 1 day

Electrical shocks. Direct and indirect contacts.
Collective and personal protective equipment. Hazardous areas. Basics in safety.
Prevention against electrical shocks, Lock-Out Tag-Out procedure (LOTO).

INTRODUCTION TO MOTORS — 0.5 day

Different type of motors. Operation and technology. Working principle of induction and synchronous motors.
LV & HV motors. Troubleshooting.

DESCRIPTION OF STEAM TURBINES GENERATORS — 0.5 day

Electrical power generating set. Technology. Coupling.
Main technical characteristics of these types of equipment.

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Training - Electrical Maintenance for Industrial Plants

ELECMAI-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of electrical equipment such as generators, motors and power grids. It includes performances, operation, maintenance, hazards and safety

Level
Skilled

Public
Electrical technicians, supervisors and inspectors, operation and maintenance staff as well as reliability engineers

Objectives
Attendees will be able to implement the following skills:

- Understand a plant grid and its structure
- Master electrical equipment including motor operating principles
- Detect the main disturbances and failures related to electrical motors
- List the main maintenance procedures on these types of equipment
- Understand the roles of the safety parts

Pedagogical & technical resources

- Drawings and datasheets used in the industrial plants
- Practical exercises and case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CHARACTERISTICS OF PLANT ELECTRICAL DISTRIBUTION — 0.5 day

Purpose of electrical distribution, characteristics of the grid. One line electrical diagram.
Main grid, auxiliary grid, safety grid. Application to a typical grid.

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SUBSTATION EQUIPMENT & WORKING PRINCIPLE OF SWITCHGEAR - MAINTENANCE — 2 days

Purposes and uses of equipment, as well as its first level maintenance.
Operation and technical characteristics.
Transformers: purpose of transformer on a power grid; operating principle, single phase to tri phases; windings connection and protections. Preventive maintenance.
Circuit breakers: operating principle, technologies, main failures.
Cables, switchboards, equipment, relays, diesel generators, batteries, chargers and UPS. Equipment monitoring.
Gas insulated substation: principle and technology.

SAFETY EQUIPMENT & RELIABILITY — 1 day

Main types of protections. Earthing system choice LV&HV: advantages and drawbacks.
Selectivity of protections: mains techniques. Protection relays. Insulation monitoring.
Hazardous area (ATEX) equipment: standards and maintenance rules.
LockOut - Tag-Out procedures (LOTO).

INDUCTION & SYNCHRONOUS MOTORS — 1 day

Operation and technical characteristics (intensity, efficiency, power factor and torque).
Field of use of power and voltage range HV & LV. Technology and hazardous area (ATEX).
Variable speed drive, type of drives; consequences on the grid. Electrical protection of motors.
Synchronous motors: torque control, excitation, different technologies.
Induction motors: various types of starting according to the mechanical load and power of the motor.
Constraints from the grid; maximal numbers of launches. Applications and case studies.

STEAM TURBINES GENERATORS — 0.5 day

Main parameters of the steam turbine generator. Technology and operation of the electrical generator.
Isolated mode and coupling of the generator: impact on the grid.
Application: maintenance case studies.

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Training - Rotating machinery electrification

ELECMT-EN-P | Face-to-face only | 2 days

Cette formation explique comment évaluer la pertinence de l'électrification d'une machine tournante (pompe, compresseur) en vue de réaliser des économies de consommation de combustible et donc d'émissions d'équivalents de CO2 à l'atmosphère

Level

Skilled

Public

Ingénieurs et techniciens en charge de la modernisation d'une machine tournante ou d'un parc machines.

Objectives

Attendees will be able to implement the following skills:

- Explain how to calculate the work and the power of a rotating machine
- Explain how to select an electrical motor
- Explain how to assess the benefits of such an electrification project

Pedagogical & technical resources

- Interactive course
- Case studies coming from actual situations.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ROTATING MACHINERY WORK AND POWER — 1 day

Pumps and compressors

- Basics of construction.
- Hydraulics and gas compression basics
- Application: work and power calculations/on-site checks

Drivers: electrical motors, diesel engines, gas turbines, steam turbines, expanders

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- Basics of construction.
- Combustion and gas expansion basics
- Application: work and power calculations/on-site checks

ROTATING MACHINERY ELECTRIFICATION 1 day

Pumps and compressors of various sizes electrification case studies, allowing:

- The calculation/check of the required works and powers
- The assessment of the project benefits, in terms of: fuel consumption savings, CO2 emissions to atmosphere savings, footprint savings...

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Electrical Technicians

ELECTEC-EN-P | **Face-to-face only** | **35 days**

Improve electrical technicians performance in safety, quality and work efficiency. This course will provide an IFP Training Certificate according to the IFP Training procedures

Level
Skilled

Public
Electrical technicians from refineries and petrochemical plants

Objectives
Attendees will be able to implement the following skills:

- Apply electrical safety rules
- Identify equipment used for the grid
- Perform checks in workshop and on the plant
- Explain electric motors and generators technology
- Write/validate electrical maintenance procedures

Pedagogical & technical resources

- Training split into thematic modules and "On The Job Training" (OJT). To give participants the opportunity to better assimilate the content of the previous course modules, and apply the studied subjects to the facilities
- Workshop practice
- Exercises on site
- Intermediate and final tests to evaluate trainee according to IFP Training certificate procedure

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: ELECTRICITY FUNDAMENTALS, PROCESS & SAFETY — 5 days

Electricity fundamentals. Voltage. Intensity. Power. Ohm law. Main characteristics of cables and wirings.

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Process and electrical equipment: process constraints due to electrical power supply; introduction to electrical drawings.
Physics: pressure, force, temperature and electrical units used in Oil & Gas processes. Main physical parameters of high voltage cells.
Safety at work: general hazards and electrical risks in a petrochemical plant; electrical hazardous area; protections layers concept; work permit and prevention. Application on an electrical equipment maintenance.

MODULE 2: INDUSTRIAL ELECTRICITY BASIS - PLANT ELECTRICAL NETWORK & GRID — 5 days

Main parameters of an industrial electrical power supply. Electrical distribution drawings. Existing electric distribution diagram and grid. Wiring and connecting switchgear inside electrical cabinets. Replace/repair an equipment in a cabinet. Checks and inspection.
Practical works in a workshop according to available equipment.
Hazards: electrical shocks, direct and indirect contact, collective and personal protective equipment, hazardous areas.
Mini-study (1 day team work) for an assigned electrical system: detail specific hazards and barriers, critical process variables, critical pieces of equipment and critical operations.

MODULE 3: ELECTRICAL HAZARDS - ATEX - LOCKOUT/TAG-OUT PROCEDURES — 5 days

Electrical protection: electrical hazards for human body and material; equipotential connections, grounding protection. Fuses - Circuit breakers - Selectivity of protections: main techniques. Protection relays. LV & HV earthing system: protections and preventive measures. Reliability and safety.
Different voltage magnitude. Hazardous area and different electrical equipment installed in ATEX zones; maintenance constraints.
Electrical authorizations - Role and commitments related to work permits.
Lock Out & Tag Out rules before and after maintenance works. Case study and practical works on a switchgear.
Mini-study (1 day) for an assigned electrical substation: identify the grounding system & the possible existing defaults.

MODULE 4: ON THE JOB TRAINING 1 (ELECTRICAL NETWORK) — 5 days

OJT:

- Application of the previous module(s) content to the actual plant.
- According to a subject submitted by the lecturer, the trainees will be requested to prepare a written report and 20 minutes presentation about “Electrical Network”: safety (work permit, risk analysis, safeguards...); detailed network and grid; results analysis (accuracy, acceptance criteria...).
- The trainee will present its work to other trainees and lecturer during other modules.

MODULE 5: ELECTRICAL MAINTENANCE — 5 days

Electrical distribution monitoring: main, auxiliary and safety grid; inspection and failure detection systems; LV & HV cells (standards and technology); maintenance procedures.
Transformers: overall technology, troubleshooting, operating and maintenance procedures; winding connections.
Circuit breakers: technology and switchboard; maintenance, replacement and settings.
Practical works: racking-in/out procedures; main parameters of cables, switchboards, relays, diesel generators, batteries, chargers, UPS.
Steam/gas turbines generators: voltage control and excitation systems; impact of the generator coupling on the grid.
Application: electrical parts replacement and malfunction consequences.
Practical works: applications are performed on representative operating technical substation.

MODULE 6: ELECTRICAL MOTORS (MAINTENANCE & INSPECTION) — 5 days

Technology: working principle of an induction and synchronous motors; features (power, current, torque and power factors); protective modes vs. external environment (temperature classes, protection class index,

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hazardous area motors, main “EEx” protection); electrical and thermal protection.
Variable speed technology: motor power and network capacity, limiting conditions due to the grid; number of starts.
Control and repair techniques: bearings, lubrication control; main mechanical failures.
Coil insulation repairs: technology and quality; electrical tests (electrical resistance, insulation, polarization...).
Practical work: dismantling of a LV motor; inspection, electrical insulation checks; reassembly the motor.
Visit of a motor repair workshop (if possible): identification of main components on existing motor equipment.

MODULE 7: ON THE JOB TRAINING 2 & FINAL TEST (ELECTRICAL MAINTENANCE) 5 days

OJT (3 days)

- Application of the previous module(s) content to the actual plant. The subject is submitted by the lecturer.
- At the end of the OJT period, the trainees will be requested to prepare a written report and 20 minutes presentation about “Electrical Maintenance”: safety (work permit, risk analysis, safeguards...); topics studied during the previous modules; results analysis (accuracy, acceptance criteria...).

Final test (2 days)

- Presentation of OJTs to the classroom.
- Written test about all the training contents according to the IFP Training Certification procedure.

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Training - Environmental Management

ENVMGT-EN-P | Face-to-face only | 5 days

This course provides a thorough and applied knowledge of best industry standards and practices for appraising environmental matters throughout the life cycle of a field development, to implement the management of impact and risks throughout the life cycle of a project from exploration up to abandonment

Level

Knowledge

Public

Managers, advisors, engineers, and operations staff involved in management of environmental issues all along the lifetime of a field development

Objectives

Attendees will be able to implement the following skills:

- Explain the fundamentals of environmental management in terms of risks and impacts
- Describe techniques, fundamentals and contents of environmental impact assessments
- Identify mitigation measures
- Select key performance indicators, and set up environmental management plans
- Explain the content of an oil spill contingency plan

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF ENVIRONMENTAL MANAGEMENT — 0.5 day

Why environmental management is necessary. Concept of sustainability.
Definitions: environmental impact, significance, accidental vs. operational discharges, discharge and pollution.
Legal standards: definition, standard determination. Best available technology. Best environmental practices.

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Environmental Quality Standards (EQS), discharge standards - Regional, international, conventions.
Introduction to social management.

ENVIRONMENTAL, SOCIAL & HEALTH IMPACT ASSESSMENT — 1 day

Risk assessment: concept of hazards, risks, hazard identification and risk assessment process.
Impact assessment throughout the lifecycle of the project.
Aspect and potential impact identification.
Sources of environmental information.
Impacts on atmosphere: air pollution, GHG emissions.
Impacts on aquatic resources: water pollution and water availability.
Impacts on land resources: ground pollution and land use.
Impacts on biodiversity.
Socio-economic and cultural impact.

ENVIRONMENTAL MANAGEMENT PLAN — 0.75 day

Concept and elements.
Control measures to reduce air emissions.
Control measures to reduce water consumption and water pollution.
Control measures to reduce land pollution and use.

MONITORING & REPORTING — 0.5 day

Key performance indicators, Industry performance - Trends.
Environmental monitoring and surveillance.
Green house gases estimation and reporting.

WASTE MANAGEMENT PLAN — 0.5 day

Strategy - Type of waste.
Waste collection.
Transport and storages (primary, final...).
Treatments options (biological, thermal desorption).

MANAGEMENT OF ENVIRONMENTAL EMERGENCIES — 0.75 day

Identification of spill scenarios.
Oil spill contingency planning strategies: onshore and offshore cases.
Typical resources for oil spill contingency plans.

STAKEHOLDERS ENGAGEMENT — 0.25 day

Stakeholders identification.
Engagement and information process.
Stakeholders engagement plan review.

ENVIRONMENTAL MANAGEMENT SYSTEM — 0.5 day

Elements of environmental management systems.
Referentials and certification. ISO 14001.
EMS as part of integrated management systems.
Environmental culture and leadership in the organization.

ENERGY MANAGEMENT — 0.25 day

Introduction to energy sources.
Energy efficiency. Measures for improvement.

Sessions

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Pau - From 11/02/2026 to 11/06/2026 **4360 €/HT**

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Training - Environmental and Social Risk Management

ENVSOC-EN-P | Face-to-face only | 5 days

This course provides a thorough and applied knowledge of best industry standards and practices for appraising environmental and social matters that need to be handled cautiously throughout the life cycle of an upstream project, from design to construction and operation of Oil & Gas processing facilities

Level

Knowledge

Public

Managers, advisors, engineers and operations staff involved in oversight or management of environmental and social issues all along the lifetime of an upstream project

Objectives

Attendees will be able to implement the following skills:

- Understand the global prevailing context for the Oil & Gas industry
- Grasp legal requirements and standards with respect to impact on local environment and populations
- Understand techniques and contents of environmental and social impact assessments
- Identify mitigation measures, perform stakeholders' mapping and build public consultation and disclosure plans
- Select key performance indicators, and set up monitoring with environmental and social management plans

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ENVIRONMENTAL ISSUES RELATED TO E&P ACTIVITIES — 0.25 day

Historical overview of impact awareness, management.
Definitions: environmental impact, significance, accidental vs. operational discharges, discharge and pollution.

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THE STAKES — 0.75 day

Environmental issues: local, regional, global.
Air, water (availability, pollution), biodiversity, wastes.
Kyoto protocol, carbon dioxide accounting, cap and trade, clean development mechanisms.
Toxicity, ecotoxicity.

ENVIRONMENTAL RISK ASSESSMENT (ERA), LEGAL REQUIREMENTS/LEGAL STANDARDS: NATIONAL, REGIONAL, INTERNATIONAL — 0.25 day

Environmental Risk Assessment (ERA).
Legal standards: definition, standard determination, best available technology, best environmental practices.
Environmental Quality Standards (EQS), discharge standards - Regional, international, conventions.

ENVIRONMENTAL IMPACT ASSESSMENT - PROJECTS — 0.5 day

Environmental impact assessment activities throughout the life cycle of a field, tools used for impact prediction.
The EIA process, scoping an EIA, ENVID (Environmental Hazard Identification), environmental management plan. Case study.

ENVIRONMENTAL RISK MANAGEMENT - PRODUCTION ACTIVITIES — 0.5 day

HSE MS - EMS (ISO 14001), continuous improvement processes.
Key environmental procedures: wastes management, chemical management, monitoring.
Oil spill contingency planning.

MONITORING & REPORTING — 0.5 day

Key performance indicators, industry performance - Trends.
Environmental monitoring & surveillance.
Green house gases estimation and reporting.

ENVIRONMENTAL RISK MANAGEMENT - ABANDONMENT — 0.25 day

SOCIAL ISSUES RELATED TO E&P ACTIVITIES: THE RISKS, THE STAKES & THE STRATEGIES — 0.5 day

The risks and the stakes. Some high profile cases (human rights, NGOs activism, etc.).
Documentary viewing and discussion on social risks in E&P activities.
How to change practices and image?

PARTICIPATIVE SOCIAL IMPACT ASSESSMENT AS A RISK MANAGEMENT TOOL — 0.5 day

Participative social impact assessment: definition, business case and standards, process.
Social management plans and monitoring. Focus on special topics: involuntary resettlement, local communities, business in conflict zones.

STAKEHOLDER ENGAGEMENT — 0.5 day

Stakeholder engagement: definition and business case.
Public consultation and disclosure plan (steps and techniques).
Stakeholder mapping.
Stakeholder engagement: misguiding assumptions and key success drivers.

CASE STUDY: SOCIAL SCREENING OF AN OIL & GAS PROJECT — 0.5 day

Based on a group work, participants should prepare a:

- Stakeholder mapping.
- Social impacts identification and mitigation plan.

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Training - EOR Concepts and Applications

EOR-EN-P | Face-to-face only | 5 days

This course provides a detailed understanding of Enhanced Oil Recovery (EOR) methods and mechanisms together with information about EOR projects workflow and decision-making, especially screening criteria

Level

Knowledge

Public

Reservoir engineers, petroleum engineers and assets managers involved in EOR projects

Objectives

Attendees will be able to implement the following skills:

- Discuss recovery expectations from reservoirs under primary, secondary and EOR methods
- Discuss main Enhanced Oil Recovery (EOR) methods and corresponding mechanisms for improving recovery factor
- Apply screening criteria used for decision making on EOR projects
- Plan and apply main EOR methods using empirical, analytical and simulation tools

Pedagogical & technical resources

- Interactive lectures and exercises
- Field case studies
- Chemical and Miscible Gas EOR simulation using dedicated industrial software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF OIL RESERVOIRS DRIVE MECHANISMS — 1 day

Review of primary and secondary recovery drive mechanisms:

- Natural depletion of undersaturated oil reservoir.
- Solution gas drive.

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- Natural water drive.
- Water and gas injection.

Principle and mechanisms of main EOR methods:

- Chemical flooding.
- Miscible gas injection.
- Thermal flooding.

EOR - CHEMICAL METHODS (SURFACTANT, POLYMER, ALKALINE) 1.5 days

Principles and mechanisms of chemical EOR.
Selection criteria.
Recovery targets and why they are seldom met.
Chemicals. Characteristics and properties.
Preformed Particle Gel (PPG).
Colloidal Dispersion Gels (CDG).
Design considerations.
Simulation of chemical flooding. Application to ASP flooding.
Case studies.

EOR - MISCIBLE GAS INJECTION METHODS (CO2, N2, HC) 1.5 days

Principles and mechanisms of miscible gas EOR.
Minimum Miscibility Pressure (MMP).
Hydrocarbon miscible displacement:

- First contact miscible process.
- Condensing gas drive.
- Vaporizing gas drive.

Selection criteria.
Laboratory experiments.
Simulation of miscible gas injection. Application to CO2 injection.
Case studies.

EOR - THERMAL METHODS (SAGD, H&P, IN-SITU COMBUSTION) 0.5 day

Principles and mechanisms of thermal EOR.
Selection criteria.
Steam flooding production prediction.
Case studies.

EOR IMPLEMENTATION 0.5 day

EOR project planning workflow.
Pilot design.
EOR monitoring.
Case studies.

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Training - Overview of Petroleum Economics within the Energy Transition

EPE-EN-P

Face-to-face only

4 days

This course aims to provide an overview of the petroleum sector so that participants may understand the oil operations and business, from upstream to downstream, and identify economic challenges

Level

Knowledge

Public

People from the energy and petroleum sectors, industrial partners, business men and financiers, as well as public administration staff

Objectives

Attendees will be able to implement the following skills:

- describe the different types of energy resources, the supply and demand with the challenges of the oil sector in the energy transition and its actors strategy
- describe the main steps of the upstream sector with the distinction for the different types of oil contracts
- explain the main economic criteria to evaluate a project and understand the operation of the physical and financial oil markets
- explain the evolution of the refining sector and of the petroleum product markets

Pedagogical & technical resources

- Quiz and serious game on the fundamentals of the energy sector
- Case study on the economic evaluation of an E&P project
- Exercises on cargo transportation costs, hedging, and refining margins
- Team games on factors affecting crude prices, the upstream sector, and oil trading

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTERNATIONAL ENERGY SCENE : OIL AND TRANSITION — 1 day

Energy resources: definition, characteristics, conversion factor.
Energy demand and supply: evolution factors (reserves, technology, etc.) and scenarios.
History of the oil industry.
Determinants impacting crude oil prices today.
Strategies of actors: producer and consumer countries, national, independent and international oil companies, international organizations (OPEC, IEA, etc.).
Financial and political stakes, geographical and environment constraints.
Outlook for the oil sector in the energy transition: IEA scenarios, societal pressure, risk of stranded assets, risks for producing countries.

UPSTREAM — 1 day

Stages and technico-economic aspects of the Exploration-Production.
Reserve evaluation.
Economic criteria and evaluation method of an oil project.
Oil contracts and principle of the oil rent sharing.

MIDSTREAM — 1 day

Business practices and pricing.
Physical markets (spot, forward): operation, reporting agencies.
Introduction to incoterms.
Pricing a cargo, freight rates.
Financial markets (futures): operation, hedging.

DOWNSTREAM — 1 day

Refining processes and units.
Refining capacities, projects, strategies of actors.
Economic aspects of the refining sector: investments, costs and margins.
Environmental constraints, alternative fuels.
Petroleum product markets and marketing.

Sessions

Rueil-Malmaison - From 11/24/2026 to 11/27/2026 — **3130 €/HT**

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Training - Petroleum Engineering

EPETROL-EN-P | Face-to-face only | 100 days

This course provides in-depth technical knowledge of Oil & Gas production in order to hold rapidly, and very effectively, the position of field engineer, design engineer, or project engineer

Level

Knowledge

Public

Engineers (particularly recently graduated engineers or engineers in conversion) looking to acquire in-depth knowledge and best practices of Oil & Gas production

Objectives

Attendees will be able to implement the following skills:

- Grasp fundamentals of reservoir engineering and drilling
- Explain well completion and servicing, well performance and artificial lift
- Understand fundamental concepts underlying Oil & Gas processing
- Understand in detail operating conditions and basic design of oil, water and gas treatment
- Describe technology of static equipment and rotating machinery used in production facilities
- Explain offshore development techniques and flow assurance issues
- Identify main risks related to Oil & Gas production operations and review safety engineering best practices
- Contribute to the dynamics of field development projects studies
- Explain main contracts in E&P and assess project profitability

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Multiple teamwork sessions and industrial case studies
- Numerous process simulation exercises using PRO/II™ software
- Final 10-day group project on a real field development case study, result of which are presented to a jury

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

INTRODUCTION TO PETROLEUM GEOSCIENCES — 5 days

Elements & processes of petroleum systems. Exploration tools (seismic & well data). Prospect evaluation.

INTRODUCTION TO RESERVOIR CHARACTERIZATION — 5 days

Reservoir architecture. Geological characterization. Reservoir heterogeneities.

INTRODUCTION TO RESERVOIR ENGINEERING — 5 days

Reservoir engineering workflow. Petrophysics/rock properties. PVT. Well testing. Drive mechanisms.
Case study: field development plan.

DRILLING FUNDAMENTALS — 5 days

Drilling operations. Architecture of the well & completion.

WELL PRODUCTIVITY & RESERVOIR - WELLBORE INTERFACE — 5 days

Well productivity. Reservoir wellbore interface implementation.

ARTIFICIAL LIFT & WELL INTERVENTION FUNDAMENTALS — 5 days

Artificial lift: gas lift, ESP. Types and means of intervention on producing wells. General procedure of a workover.
Case study.

WELL CONTROL — 5 days

Introduction to well control methods. Equipment. Wireline, coiled tubing, snubbing.

THERMODYNAMICS APPLIED TO WELL EFFLUENT PROCESSING — 5 days

Well effluent. Gas compression and expansion. Liquid-vapor equilibrium of pure components and mixtures.
Mixture separation.

OIL & WATER TREATMENT — 5 days

Crude oil treatment: stabilization, dehydration, sweetening. Reject and injection water treatment.

GAS PROCESSING & CONDITIONING — 5 days

Gas processing: dehydration, sweetening, NGL recovery. Fundamentals of Liquefied Natural Gas (LNG) chain.

STATIC EQUIPMENT & SCHEMATIZATION — 5 days

Piping & valves. Storage equipment. Thermal equipment. Flow assurance. Schematization.

ELECTRICITY & INSTRUMENTATION — 5 days

Electrical power generation and distribution network. Instrumentation and process control. Safety
Instrumented Systems.

METERING - MATERIAL BALANCE - ALLOCATION — 5 days

Data treatment. Transactional metering of liquids and gases. Multi-phase metering.
Liquid & gas material balances. Production reporting.

ROTATING MACHINERY — 5 days

Centrifugal and positive displacement pumps. Centrifugal and reciprocating compressors. Turbo-expanders.
Gas turbines.

OFFSHORE FIELD DEVELOPMENT - FLOW ASSURANCE — 5 days

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Offshore development architecture. Technology & deep offshore specificities. Pipelines. Flow assurance issues.

SAFETY & ENVIRONMENT IN SURFACE PROCESSING FACILITIES — 5 days

Hazards and risks in production operations. Safety in production operations and during construction or maintenance works. HSE management.

SAFETY ENGINEERING — 5 days

HAZID application, HAZOP exercise, plant layout exercise. QRA and consequence analysis methodology. SIS and relief systems design.

PETROLEUM ECONOMICS & PROJECT MANAGEMENT — 5 days

Fundamentals of contracts. Project profitability evaluation. Risk analysis of Exploration & Production projects. Project cost estimation and cost control.

FIELD DEVELOPMENT PROJECT - JURY — 10 days

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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - HSE in Surface Production Operations

EPSAFOP-EN-P | **Face-to-face only** | **5 days**

This course provides a thorough understanding of risks and safety measures related to products, equipment and different operations in Oil & Gas production facilities

Level

Knowledge

Public

Engineers and staff involved in operating Oil & Gas field production facilities

Objectives

Attendees will be able to implement the following skills:

- Deepen knowledge of hazards involved in routine operations, SIMOPS and shutdown/start-up operations
- Assess risks involved in different operations and adopt best industry practices
- Adopt the most appropriate safety measures in routine Oil & Gas processing operations and when faced with unforeseen events
- Explain key safety management rules leading to high HSE standards

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OPERATIONS & HSE — 0.25 day

Hazards and risks incurred. Consequences.
Risk management means: equipment, organizational and human aspects.

MAIN HAZARDS OF HYDROCARBON PROCESSING — 0.75 day

Flammability: flame ignition and propagation principles. Types of combustibles, oxidizers and most common

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ignition sources in process facilities.
Toxicity: exposure limits. Specific hazards associated to H2S. Use of Safety Data Sheet (SDS).
Fluid behavior and related hazards: vessel pressure, consequences of temperature variation (thermal expansion, vaporization, vacuum, water hammer).
Fundamentals of pressure relief equipment: pressure relief valves, rupture disks, vacuum protection, flame arrestors.

RISK ASSESSMENT TOOLS - JOB SAFETY ANALYSIS — 0.5 day

Fundamentals of risk assessment process.
Job Safety Analysis (JSA) procedure and steps.
JSA exercise.

PERMIT TO WORK SYSTEM PROCEDURE — 0.5 day

Permit To Work (PTW) system. Objectives. Roles and responsibilities.
Main elements of PTW system. Typical approval process and information flowchart.
Master permit and associated certificates.
Management of shift and rotation handover. Permit renewals.
New technologies applied to PTW system. Digital PTW.

SAFE ISOLATION OF PLANT & EQUIPMENT — 1.5 days

Management of isolations.
Lock-out/tag-out procedure.
Steps of process isolations.
Degassing-inerting: steam, nitrogen, water, vacuum, work permits...
Risks associated to operations of depressurization and drainage toward: flare, slops, tanks, oily water.
Start-up: checks, accessibility and cleanliness, line up, deaeration, seal tests, oil in.
Personal Protective Equipment (PPE).

HSE IN MAINTENANCE & CONSTRUCTION WORKS — 0.5 day

Risks associated to construction and maintenance works:

- Lifting and rigging operations.
- Access and working in confined space. Ventilation and atmosphere analysis: oxygen content explosivity, toxicity.
- Works at height: ladders, scaffolding, mobile elevated working platforms...
- Safe use of tools.
- Radioactive sources.

ORGANIZATIONAL FRAMEWORK - HUMAN FACTORS — 0.5 day

Introduction to HSE management system.
SIMultaneous OPerations (SIMOPS) management.
Management of change.
Downgraded situations.
Human factors in risk management.

ENVIRONMENTAL MANAGEMENT IN FIELD OPERATIONS — 0.5 day

Main concepts.
Tools to manage sustainability.
Potential environmental impacts in field operations.
Sustainability reporting. Introduction to regulatory framework.

Sessions

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Pau - From 10/05/2026 to 10/09/2026 **4360 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - HSE in Maintenance and Construction Activities

EPWORK-EN-P | **Face-to-face only** | **5 days**

This course provides a thorough understanding of risks related to products, equipment and different operations involved in the execution of construction/maintenance works

Level

Knowledge

Public

Engineers, technicians and operators involved in the supervision of construction and maintenance of Oil & Gas field processing facilities

Objectives

Attendees will be able to implement the following skills:

- Identify the hazards and assess the risks associated to a construction/maintenance work
- Describe the main elements and responsibilities of the Permit To Work (PTW) system
- Identify the environmental impacts of the activity and to plan the appropriate mitigation measures
- Identify the main HSE challenges associated with the management of contractors
- Lead a team carrying out a safety audit of construction/maintenance works

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OPERATIONS & HSE — 0.25 day

Hazards and risks incurred - Consequences.
Risk management means: equipment, organizational and human aspects.

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MAIN HAZARDS OF HYDROCARBON PROCESSING — 0.5 day

Flammability: flame ignition and propagation principles; types of combustibles, oxidizers and most common ignition sources in process facilities.
Toxicity: exposure limits; specific hazards associated to H2S; use of Safety Data Sheet (SDS).
Fluid behavior and related hazards: vessel pressure, consequences of temperature variation (thermal expansion, vaporization, vacuum, water hammer).

RISK ASSESSMENT TOOLS - JOB SAFETY ANALYSIS — 0.5 day

Fundamentals of risk assessment process.
Job Safety Analysis (JSA) procedure and steps.
JSA exercise.

PERMIT TO WORK SYSTEM PROCEDURE — 0.5 day

Permit To Work (PTW) system. Objectives. Roles and responsibilities.
Main elements of PTW system. Typical approval process and information flowchart.
Master permit and associated certificates.
Management of shift and rotation handover. Permit renewals.
New technologies applied to PTW system. Digital PTW.

HAZARD IDENTIFICATION & RISK ASSESSMENT OF MAINTENANCE & CONSTRUCTION WORKS — 1.5 days

Risk assessment and recommended mitigation measures associated to:

- Lifting: manual and mechanical.
- Work at height/over water/diving.
- Use of tools: sand blasting, lifting, chemical and HP cleaning, hydraulic tests, flexible pipes, welding tools, milling...
- Radioactive sources: hazards, markers, use.
- Electrical equipment: electrical classes, hazards, habilitation, consignation, personnel protection.
- Confined space works: ventilation, gas detection, oxygen content of air, penetration, evolution of hazard during works, supervision.
- Hydrostatic testing.
- Welding/grinding/cutting.

ENVIRONMENTAL MANAGEMENT IN MAINTENANCE & CONSTRUCTION OPERATIONS — 0.25 day

Main concepts.
Potential environmental impacts in maintenance and construction operations.
Waste management principles and strategies for planning and implementation.

ORGANIZATIONAL FRAMEWORK - HUMAN FACTORS — 0.5 day

Introduction to HSE Management system.
SIMultaneous OPerationS (SIMOPS) management.
Management of change.
Downgraded situations.
Human factors in risk management.

HSE MANAGEMENT OF CONTRACTORS — 0.5 day

Contractor management as a key element of HSE Management system.
Definition of elements for HSE contractor management from selection process to final performance evaluation.

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HSE risk assessment of contract scope.

AUDITS - MEANS OF IMPROVING THE HSE PERFORMANCE 0.5 day

Objectives of an audit.
Pre-audit preparations: audit boundaries, expectations, audit checklists, audit plans.
Audit: findings versus expectations.

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Training - Well Completion Equipment and Procedures for Flowing Wells

EQTP-EN-P | Face-to-face only | 5 days

This course provides the knowledge and skills needed to choose and operate completion equipment for flowing wells

Level

Skilled

Public

Drilling or production engineers, supervisors involved in completion for oil & gas wells and gas storage wells

Objectives

Attendees will be able to implement the following skills:

- describe the function of each equipment in the well completion
- assess which equipment is required in a conventional case
- carry out a complete string design
- design the corresponding completion procedure
- work on complex completion issues with specialists

Pedagogical & technical resources

- Equipment and cutaway tools display in Pau
- For in-house courses held elsewhere, in as much as a completion shop is made available, a visit will be organized to the said shop
- Summary notes prepared and presented by the participants
- Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WELL-COMPLETION EQUIPMENT — 1.5 days

Functions to be carried out and corresponding equipment.
Production string(s) configurations (conventional or tubing less, single or multi-zones).
Production wellhead: tubing head spool and Christmas tree (components, design).
Tubing and connections (main characteristics, criteria of choice).
Packers and accessories (drillable or permanent, retrievable).
Bottom hole devices (landing nipples, circulating devices...) and relevant wireline equipment.
Subsurface safety valve (subsurface controlled, surface controlled).
Equipment of gas storage wells.

FUNDAMENTALS OF TUBING MOVEMENT & FORCES — 1 day

Point to be verified.
Packer permitting free motion (tubing movement, tension on the tubing hanger).
Packer permitting no motion (packer to tubing force, tension on the tubing hanger).

WELL-COMPLETION PREPARATION & IMPLEMENTATION — 1.5 days

Preparing for operations.
Safety recommendations during completion operations.
Standard running-in and start-up steps:

- Case of a packer set directly with the tubing string.
- Case of a packer set prior to the running-in of the tubing string.

Operating recommendations.

ADVANCED COMPLETION — 0.75 day

Tubing less completion.
Intelligent completion.
Multilateral completion.
Deep water completion.
Single trip multizones gravel pack system.

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 02/08/2027 to 02/12/2027 — **4420 €/HT**

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Training - Investment Profitability Studies for Energy Projects

ERP-EN-P | Face-to-face only | 3 days

This course provides a better understanding of the concepts behind the theory of capital budgeting, thus helps improving the analysis in investment profitability studies A number of computer case studies will be treated all along the course to apply the principles that are presented succinctly, which makes this course a very practical one

Level

Knowledge

Public

Economists, engineers and commercial staff concerned with decisions affecting medium and long-term cash flows, such as investment, disinvestment, acquisitions or leasing, who need to improve their understanding of the theory and practice of investment analysis in the energy sector

Objectives

Attendees will be able to implement the following skills:

- Develop computer models for the economic evaluation of Oil & Gas projects
- Incorporate specific financing plan through equity profitability analysis
- Incorporate the risk and uncertainty in the economic evaluation of Oil & Gas projects

Pedagogical & technical resources

Case studies simulated on computers

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ECONOMIC EVALUATION CRITERIA — 0.5 day

Corporate finance, capital costs and discount rate of the company.
Construction of project cash flows schedule.
Economic criteria for project evaluation: net present value (NPV), internal rate of return (IRR), payback period, etc.

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Case studies: development of an oil field under concession.

GLOBAL PROFITABILITY ANALYSIS — 1 day

Methodology for assessing the global profitability of capital invested.
Impact of taxation and inflation in profitability investment studies.
Choosing an investment program with a limited budget, scarcity cost of capital.
Case studies: accelerating production project (EOR) project of upgrading a refinery (Hydrocracking unit).

ECONOMIC COST ANALYSIS — 0.5 day

Accounting cost vs. economic cost, after-tax cash outflows.
Total discounted cost, annual economic cost.
Economic depreciation, unit economic cost, optimal economic lifetime.
Cases studies: issues related to purchasing of equipment and definition of an optimal economic lifetime.

EQUITY PROFITABILITY ANALYSIS — 0.5 day

Financing Oil & Gas projects, project finance and B.O.T. structures.
Various financing plans and debt repayment.
Analysis of equity cash flows, return on equity capital, financial leverage.
Case studies: construction of LNG plant and gas pipeline projects with specific financing.

RISK ANALYSIS — 0.5 day

Introduction to risk analysis and risk discount rate: sensitivity analysis, Spider and Tornado diagrams.
Probability of success, economic risk analysis in oil exploration.
Economic study of an exploration project using Min, Mode and Max scenarios.
Case studies: valuation of a decision to acquire information (seismic or drilling) and pricing of an exploration bloc.

CASE STUDIES

Oil field development project.
Acceleration of production project with or without EOR (Enhanced Oil Recovery).
Isomerization vs. alkylation project.
FCC project (Fluid Catalytic Cracking).
Project of upgrading a refinery.
Hydrocracking unit project.
Polypropylene Plant Project.
LNG plant project with specific financing.
Gas pipeline project with specific financing.
Service station modernization project.
Gas-fired power plant project.
Valuation of a decision to acquire information (seismic or drilling).
Pricing of an exploration bloc.

Sessions

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Training - ESP Pumps Design, Installation and Troubleshooting

ESPP-EN-D | Distance only | 5 days

This course provides a comprehensive, practical knowledge of centrifugal pumping concepts (Electrical Submersible Pumps), design, operations and potential problems

Level

Knowledge

Public

All personnel involved in the design, installation, operation, and troubleshooting of ESP pumps

Objectives

Attendees will be able to implement the following skills:
Attendees will be able to implement the following skills:

- select the ESP pump adapted to the well conditions,
- analyze operating conditions,
- improve performance and manage equipment lifetime

Pedagogical & technical resources

- Participative lecturing
- Several animations & videos
- Numerous exercises on equipment calculations.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic knowledge of well performance

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WHY ARTIFICIAL LIFT? — 0.5 day

Main types of intervention: measurement, maintenance, workover.
Main parameters relative to reservoir and well performance curve: inflow and outflow.
Need for artificial lift...

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ELECTRICAL SUBMERSIBLE PUMP (ESP) — 2 days

Principle, field of application.
Main specific pieces of equipment: pump, seal section/protector, electric motor selection, Variable Speed Drive (VSD) interaction.
Operating procedures and troubleshooting (including PROSPER™ methodology).

ESP DESIGN — 1.25 days

Base case: oil “without problems”.
Specific cases: gassy oil well, ESP with VSD.

INSTALLATION PROCEDURES — 0.5 day

RIH procedures & POOH procedures.
Best practice.

OTHER METHODS & PROCESS SELECTION — 0.5 day

Overview of other methods (SRP, hydraulic pumps, jet pumps, Progressive Cavity Pumps [PCP]): principle, fields of operation.
Artificial lift methods comparison, benefits and limitations.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - ESP Pumps Design, Installation and Troubleshooting

ESPP-EN-P | Face-to-face only | 5 days

This course provides a comprehensive, practical knowledge of centrifugal pumping concepts (Electrical Submersible Pumps), design, operations and potential problems

Level

Knowledge

Public

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Objectives

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Pedagogical & technical resources

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- Several animations & videos
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Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic knowledge of well performance

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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Overview of other methods (SRP, hydraulic pumps, jet pumps, Progressive Cavity Pumps [PCP]): principle, fields of operation.
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KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 06/07/2027 to 06/11/2027 — **4420 €/HT**

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Training - E&P Project Cost Estimation and Control

ESTIM-EN-P | Face-to-face only | 5 days

This course provides a structured and comprehensive approach towards cost estimation and control of Oil & Gas projects

Level
Skilled

Public
Project engineers and managers, petroleum architects, cost/estimation engineers for new or existing facilities projects

Objectives
Attendees will be able to implement the following skills:

- Technically define a project to provide a comprehensive cost estimate
- Perform estimates using a variety of methods and tools
- Apply the main cost control techniques used throughout the project execution

Pedagogical & technical resources

- Case studies from various projects
- Application for cost estimates on simple project

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF PROJECT — 1 day

Integration of global context of the project. Project types, project stages. Project management process reminder, including deliverables at each stage. Project initiation. Feasibility studies.
Preliminary project planning. Global schedule/constraints, cost estimate principles, main feasibility issues.
Overview of project cost estimating methods. Scope and exclusions. Cost management process. Definitions, cost references, AACE classes. Order of magnitude estimate. Direct and Indirect costs. CAPEX vs. OPEX.
Breakdown of the project according to the principle of Work Breakdown Structure (WBS)

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ESTIMATION DURING THE VARIOUS PHASES OF THE PROJECT — 2 days

Initial phase: Chilton factors, extrapolation method (comparison with similar projects). Typical accuracy and traps. Location factors.
Basic engineering/FEED: semi-detailed estimate, cost of main equipment and works. Owner costs. Key role of engineering studies, factored estimate.
Detailed studies: detailed estimate, use in the Project process. Elements needed for final approval by owner. Corrective factors.
Adjustments required to these methods in estimating the cost of revamping projects.

COST OPTIMIZATION — 0.5 day

Value analysis: functional breakdown of the project, technical and economic analysis of each part.
Economic evaluation of process and technical alternatives. Decision-making.

ASSESSMENT OF FINANCIAL RISKS & UNCERTAINTIES — 0.5 day

Project financial risk identification and quantification. Potential impact on cost estimate. Provisions. Upper limit. Typical values used per phase. Allowances and contingencies. Associated action plans. Particularities of cost estimation of brownfield projects.

COST CONTROL — 1 day

Overview of cost control process.
Definition, principles and objectives of cost control. Responsibilities of the project owner and engineering.
Cost monitoring report, frequency, consistency with WBS and project budget. Change management.
Forecasts and reporting.

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Training - Ethylene Compression and Hypercompression

ETHCO-EN-P | Face-to-face only | 4 days

This course provides a comprehensive understanding of ethylene compression related to compressors technology, operation and efficiency

Level
Skilled

Public
Engineers and technical staff (operation, maintenance and/or engineering) interested or involved in ethylene compression

Objectives
Attendees will be able to implement the following skills:

- Recognize ethylene compressor and hypercompressor technology
- Explain the compression of gases in hypercritical mode and the method of pre-dimensioning these machines
- List the monitoring points provided on these machines and the related operations
- Identify the typical failure modes of these machines, their causes, and associated remedies

Pedagogical & technical resources

- Study of actual cases based on industrial situations
- Various illustrations of actual systems
- Display of components of compressors

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ETHYLENE BEHAVIOR DURING COMPRESSION — 1 day

Ideal gas equation and implementation; isentropic compression; mass and volume capacity. Supercritical gas behavior.
Practical compression laws: discharge temperature, power of compression.
Pressure-enthalpy diagram for ethylene: for primary compressors and hypercompressors.

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Main limitations: risks of condensation, overheating, decomposition, grease deposits.
Case studies: ethylene compression from 1 to 3000 bar.

PRIMARY COMPRESSORS BEHAVIOR & OPERATION — 1 day

Indicator diagram for ideal and actual cases.
Influence of process temperatures and pressures.
Dead volume: impact on the intake of the machine.
Capacity control: different methods.
Power, efficiency.
Behavior of multistage reciprocating compressors.
Typical troubleshooting.
Operation: start-up and shutdown difficulties.
Cases studies: industrial ethylene compression, troubleshooting.

HYPERCOMPRESSORS BEHAVIOR & OPERATION — 1 day

Compression ratio limitation due to axial loads on the crankshaft.
Interstage pressure control, risk of rods overbendings or plunger/seals breaks.
Discharge temperature limitation due to decomposition and oligomer deposits.
Lubrication operation and survey: crankshaft, oil seal and cooling. Criticity of the oil type.
Machine safety - PROGNOST™ type monitoring: axial vibrations, rod drop, oil temperatures and pressures, process temperatures and pressures.
Typical defaults, solutions and diagnosis.
Cases studies: various cases of troubleshooting.

TECHNOLOGY OF PRIMARY COMPRESSORS — 0.5 day

Main components: frame, cylinders, piston, piston rings, piston rod, crankhead, crankshaft, distance pieces, valves, rod seals.
Auxiliaries: pulsation dampeners, crankshaft, seals and cylinder lubrication systems, cooling systems, safety devices.
Capacity control technology: main components (unloaders, clearance pockets).
Application: various compressor parts demonstrations.

TECHNOLOGY OF HYPERCOMPRESSORS — 0.5 day

Main differences with classical reciprocating compressors.
Hypercompressor description: valves, cylinders, seals.
Auxiliaries:

- Construction and survey.
- Crankshaft lubrication.
- Rod seal lubrication.
- Oil seal and cooling.
- Drains.

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Training - IWCF Enhanced Well Control - Level 4

EWCL4-EN-P | Face-to-face only | 5 days

This course aims to improve the Well Control knowledge for senior personnel to a new higher level beyond the current IWCF Level 4 Well Control training and assessment with also Well Operations CRM. Furthermore it includes IWCF Level 4 Equipment and Principles & procedures tests and simulators assessment allowing passing candidates to obtain the IWCF Level 4 certificate Scenario-based simulated exercises are used extensively to consolidate the theory presented in a classroom environment using interactive teaching strategies. This focus on the practical application of the theory promotes effective communication, teamwork, and enhances problem-solving skills

Level

Skilled

Public

IWCF Enhanced Well Control training is specifically designed for experienced candidates who require certification that goes beyond the standard IWCF Drilling Well Control Level 4 syllabus (operators, contractors and service companies who will be involved in geothermal, storage or oil/gas drilling operations)

Objectives

Attendees will be able to implement the following skills:

- Understand the causes of the kicks, recognize/analyze the signs of a kick in order to shut in the well with the limited gain and identify/calculate the various pressures in a well
- Follow and apply shut in methods in order to secure the well after a kick occurrence
- Know the well control methods, demonstrate the ability to kill the well and detect potential incidents during well control and take appropriate actions
- Manage: kick control in horizontal well, volumetric method, stripping pipes in the well, lubricate and bleed procedure, bullheading method
- Obtain the level 4 IWCF Well Control certification

Pedagogical & technical resources

- PPT presentation
- Course material (PPT, PDF, Word)
- Exercise book
- Case study
- Extended practice and enhanced case studies on simulator
- Certified IWCF instructors and assessors

Assessment of achievements

- Paper level 4 assessments
- Paper EWC assessment
- Practical assessment on simulator

Prerequisites

The enhanced training is for candidates who are renewing their Drilling Well Control Certification and who meet the following criteria:

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completed IWCF Drilling Well Control at Level 4 on at least 2 previous occasions
A minimum of 10 working days is required by IWCF to validate the registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

IWCF CERTIFICATION — 0.5 day

Written test on principles and procedures.
Written test on equipment.

HORIZONTAL WELL KICK CONTROL/SIMULATOR TRAINING — 0.5 day

Reminder on the kick detection.
Pressure reading and evolution while circulating a kick in a horizontal well.
Horizontal well kick detection and control on the simulator.

PRACTICAL IWCF ASSESSMENT ON SIMULATOR — 0.25 day

WOCRM CLASSROOM — 0.25 day

Situational awareness.
Decision making.
Communication.
Teamwork.
Leadership.

EWC TOPICS CLASSROOM — 0.5 day

Volumetric method theory and exercises using simulator.
Stripping.
Lubricate and bleed.
Bullheading.
Kick with casing pressure overcoming the MAASP.

SIMULATOR EXERCISES — 2.25 days

Stripping, volumetric and lubricate and bleed methods.
Kick with CP higher than MAASP.
Bullheading method.

CASE STUDY — 0.25 day

Deepwater underground blowout.

IWCF EWC TEST — 0.25 day

TECHNICAL & NON TECHNICAL (WOCRM) DEBRIEFING — 0.25 day

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This training course is offered under the **Alliance4Training** brand

Training - Steam Turbines

EXTAV-EN-P | **Face-to-face only** | **5 days**

This training provides an appropriate knowledge of steam turbine technology, performance and operation

Level

Skilled

Public

Engineers and technicians in charge of steam turbine operation, maintenance and steam turbine projects

Objectives

Attendees will be able to implement the following skills:

- Explain the operating principle and the basics of steam turbine control
- Recognize the technology and different components of single- and multi-stage turbines
- List the main criteria for selecting a steam turbine

Pedagogical & technical resources

Study of industrial cases:

- different examples of steam turbines design and on-site layout
- use of a dynamic simulator to demonstrate typical features

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

STEAM TURBINE PERFORMANCE — 1.25 days

Steam properties, inlet and exhaust conditions. Ideal and actual expansion.
Monitoring steam characteristics on the Mollier diagram: expansion, heating, efficiency, etc.
Expansion mechanisms: impulse stage, reaction stage and different types of multistage turbine.
Overall performance. Efficiency, steam consumption related to power supply.
Application: analysis of industrial turbine operation.

TECHNOLOGY — 1.5 days

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Main types of turbines, new designs.
Technical components: rotor, wheels, casing, bearings and thrust bearings, sealing devices.
Vibrations and critical speeds. Condenser and vacuum devices.
Application: study of different types of turbines and related auxiliary systems.
Practical workshop: study of component parts using a dismantled turbine.

STEAM TURBINE CONTROL SYSTEMS — 0.75 day

Speed control systems. Controllers: characteristics of conventional and digital controllers.
Equipment technology: sensors, transmitters, controllers.
Safety devices: overspeed, vibrations, temperature.

OPERATION — 1 day

Lubrication and sealing devices.
Important parameters for turbine operation.
Monitoring of steam circuit and lubrication circuit.
Start-up and shutdown sequences of different types of turbines.
Incidents occurring in the steam network, the machine or the ancillary equipment.
Safety and prevention.

DYNAMIC SIMULATION - APPLICATIONS — 0.5 day

Preparation and start-up of a steam turbine driving a centrifugal compressor.

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Training - M&A in the Energy World

FAE-EN-P | Face-to-face only | 2 days

Current developments in the energy sector are expected to lead to a new wave of mergers and acquisitions (M&A). Traditional Oil & Gas players will have to adapt (or continue to adapt for the most advanced) their business portfolio to the energy transition, and also to meet the challenges of the recent health crisis. The growth of Renewable Energy could also lead to consolidation amongst the first entrants as the sector matures. The objective of this training is to enable participants to successfully manage their acquisition operations and/or asset sales so that they can best position themselves for the future

Level

Knowledge

Public

Oil & Gas, Renewables companies' commercial, technical, financial managers and support functions staff involved in external growth operations. Public administration decision makers and personnel (industry, finance, energy, environment)

Objectives

Attendees will be able to implement the following skills:

- Lead/contribute to an M&A project through a structured process
- Evaluate assets to buy or sell using different methods (e.g.: multiples, discounted cash flows)

Pedagogical & technical resources

- Exercises
- Analysis of recent transactions
- Case studies: setting the maximum purchase price
- Case study: Critical review of a sale and purchase contract clauses
- Quiz

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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KEY STEPS & RISKS OF M&A TRANSACTIONS — 0.2 day

The various types of transactions: assets/equity.
The main stages of an acquisition/divestment project.
M&A transactions risks: key success factors.
Key participants in the process.

DETERMINING THE PURCHASE/SALE PRICE — 1 day

The different valuation methods: multiples (comparable transactions, EBITDA, PER), discounted cash flows.
Discounted cash flow method and analysis criteria refresher (NPV, IRR, Payback time). Calculating the residual value/terminal value.
Defining the maximum purchase price (or minimum sale price) taking into account synergies/di-synergies and risks.
Price adjustment options to manage uncertainties/close valuation gaps between buyer and seller.
Taking into account debt.

DUE DILIGENCE & DEAL STRUCTURING — 0.4 day

Preparing an information memorandum.
Risk management. The due diligence process and datarooms.
Choosing the legal and tax structure of the transaction.
Assessing the impact of competition laws.

NEGOTIATIONS & KEY CLAUSES OF SALE & PURCHASE AGREEMENTS — 0.4 day

Pros and cons of the various sale methods: auctions, negotiations.
Counterparties' assessment.
Conditions/ precedents.
Commitments and guarantees.
Completion adjustments.

Sessions

Rueil-Malmaison - From 09/08/2026 to 09/09/2026 — **1980 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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This training course is offered under the **Alliance4Training** brand

Training - Downstream Panel Operator

FBMOC-EN-P | **Face-to-face only** | **35 days**

This course makes possible a rapid mastery of panelist skills. The facilities are optimized and operated in a pro-active way Successful participants will be granted the “Panel Operator” IFP Training Certificate

Level

Knowledge

Public

Experienced field operators moving to panel operator positions in refining and petrochemical plants

Objectives

Attendees will be able to implement the following skills:

- Specify the elements of communication that allow you to work effectively in a team
- Explain the process studied
- Identify risks to equipment
- List unit settings to optimize production and product quality
- Identify possible causes of process disruption
- Specify the points to be taken into account in order to prepare, start and stop a unit

Pedagogical & technical resources

- Case studies and applications on generic dynamic simulators: 80% of the time spent in the training center
- Reminding of necessary theoretical and technical fundamentals directly through simulator handlings
- Training involves on-site work and supervision from mentors in the plant
- Permanent interactive delivery method
- Some pedagogical activities of this course can take place in OLEUM's facilities (subject to availability)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WELCOME (IF IN OLEUM FACILITIES)

- Welcome/safety. PPE distribution. Presentation of the training.

PANEL OPERATOR DUTIES & CONTROL ROOM ACTIVITIES — 2 days

Panel operator role within the operation team; control room staff. Reporting and handover duties.
Plant documentation: inventory, content, usage, role and duties of the panel operator.

BASIC PROFESSIONAL TRAINING — 2 days

Notions of industrial chemistry. Fluid mechanics: pressure, flowrates, fluid flow, pressure drops.
Heat exchange: exchange mechanisms, resistance to heat transfer.
Liquid-vapor equilibrium of pure substances and mixtures.
Simulators: impact of operating parameters on the chemical reaction performances, heat exchanges through various types of heat exchangers, separation in a flash drum.

PROCESS CONTROL, AUTOMATION & DCS USAGE — 6 days

Process control:

- Constitution of a control loop, symbols used. Sensors and transmitters. Control valves.
- Controllers operating principles, inputs/outputs, internal parameters and tuning.
- Complex control loops (cascade, split range, multiple calculation blocks). Advanced control basics.
- Simulators: Valves characteristic curves. PID parameters tuning. Heat exchanger duty control. Split range configuration. Behavior analysis of complex control loops.

Distributed Control System (DCS):

- Architecture and system components. Man - Machine Interface (MMI). Trends tools. Information flux between site and control room.

Automation:

- Safety instrumented systems: PSS, ESD, HIPPS, EDP; architecture and relationship with DCS. Safety logics and cause & effect matrix.
- PLCs and automation: grafcet analysis, study of specific sequences.
- Simulators: furnace safety logics.

EQUIPMENT OPERATION — 8 days

For each: working principles, technology, ancillary systems, process control scheme monitoring, operation, alarms, safety devices.
Pumps, compressors, drivers:

- Simulators: filters switch, operation of pumps; changes in operating conditions, capacity control of compressors, troubleshooting of a compressor; start-up of a steam turbine driven centrifugal compressor.

Thermal equipment: heat exchangers, air coolers, furnaces, boilers:

- Simulators: fouling of a heat exchanger; changing fuel supplied to burners, coil fouling, start-up and shutdown of a furnace.

Specific equipment for a given assignment unit (gas turbines, solid handling, extruders...).

PRODUCTS & PROCESSES — 8 days

Composition and physico-chemical properties of feeds and products.
Commercial product quality requirements, specification and standard tests. Mixing rules.
Process units: role, principles, main equipment, specific hazards. Influence of the main operating parameters on the operation, consequences on process and products. Material balance.
Distillation, absorption, stripping.
Utilities: flare systems, air production, effluent treatment units, steam, water treatments...:

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- Simulators: start-up and shutdown, operation and control of various process units (for instance: two-product distillation columns, multi draw-off distillation column, amine absorption and regeneration, sulfur recovery unit, hydrotreatment unit).

INTEGRATED PLANT SAFE OPERATION — 6 days

Panel operator safe behavior:

- Radio communication, other communication equipment. Teamwork, responsibility sharing. Transmission of know-how.
- Alertness, forward thinking plant operation. Alarm management.
- Application: role plays using the simulators (with panel operator views and FODs).

HSE in operation:

- Product, equipment and process-related risks; prevention and protection.
- Risks related to operation of equipment, to decommissioning-commissioning and start-up of equipment, specific prevention measures.
- Routine operations. Permit to work, work order, consignations and isolations.
- Special operations: SIMOPS, black start. Emergency operation and crisis management.
- Impact of plant operation on gas release into the atmosphere and on the wastewater treatment unit; minimization of releases.

Integrated plant operation:

- Steady state runs: routine checks, operating windows, integrated plant behavior (inertia, interferences).
- Global performances, margin optimization/impact of quality gaps.
- Identification, analysis and reaction to upsets and equipment failures; stabilization.

Simulators: field round on a running process unit; commissioning, start-up and shutdown procedures, justifications of different steps; inhibition management; operations in downgraded situations; practice of emergency operations.

ASSESSMENT — 3 days

Continuous assessment (including practical exercises on simulators).
Final test with real-life situation simulation exercises to validate objectives.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Directional and Horizontal Drilling

FDTDH-EN-P | Face-to-face only | 5 days

This training aims to provide the necessary knowledge to plan and carry out a directional drilling (geothermal, water, storage, oil, gas)

Level
Skilled

Public
Technicians, site managers, supervisors, superintendents and engineers who will be involved in geothermal, water, storage or oil drilling operations

Objectives
Attendees will be able to implement the following skills:

- Know about the equipment needed for directional drilling
- Design a directional well
- Calculate the trajectory of a deviated well in 2D
- Design the drill stem, with regard to a well's profile, in order to reach a target

Pedagogical & technical resources

- Exercises
- Application to a real case (project) for participants in the "Drilling & Completion Engineering" training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GENERALITIES — 6 hours

Applications, terms and definitions.
Well profiles, coordinates' system.
Trajectory control.
Uncertainty calculation, anti-collision.

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DIRECTIONAL DRILLING EQUIPMENT — 4.5 hours

Specific drilling equipment: downhole motors, rotary steerable system.
Measuring equipment: MWD, LWD, GWD.

DRILLING ENGINEERING — 13.5 hours

Well planning.
Limits of use of a drill string: buckling.
Drill string design.
Torque and drag calculation.
Drilling fluids and cementing program.
Logging.
Geosteering drilling.
Well control.

HORIZONTAL & ERD — 1.5 hours

ERD, multilateral and short radius.

CASE STUDIES — 3 hours

KNOWLEDGE ASSESSMENT — 1.5 hours

Sessions

Pau - From 04/05/2027 to 04/09/2027 — **4420 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Field Operations Engineer

FIELDIG-EN-P | Face-to-face only | 60 days

This course aims to provide the in-depth technical knowledge of Oil & Gas production facilities design and operation necessary to hold rapidly, and very effectively, the position of field operations engineer or project engineer

Level

Knowledge

Public

Engineers (particularly recently graduated field, design or project engineers) interested in a specialization in Oil & Gas surface production operations

Objectives

Attendees will be able to implement the following skills:

- Grasp fundamentals of reservoir engineering, drilling, well completion and servicing
- Evaluate well performance and identify needs for artificial lift
- Explain fundamental concepts underlying Oil & Gas processing
- Analyze operating conditions and basic design of oil, water and gas treatment
- Describe the technology of static equipment and rotating machinery used in production facilities
- Identify offshore development techniques and flow assurance issues
- Identify main risks related to O&G production operations and contribute to process safety management
- Contribute to the dynamics of field development projects studies

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Numerous applications and illustrations
- Multiple teamwork sessions. Use of dynamic simulations and industrial case studies
- Numerous simulations performed using the PRO/II™ or HYSYS™ software
- Several tutorials with equipment in a workshop. Site/field visits

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

FUNDAMENTALS OF GEOSCIENCES & RESERVOIR ENGINEERING — 5 days

Petroleum geology and geophysics. Reservoir fluids. Petrophysics.
Well log interpretation. Well testing. Reservoir engineering and simulation.

FUNDAMENTALS OF DRILLING, WELL COMPLETION & WELL PERFORMANCE — 5 days

Fundamentals of drilling. Well completion, well servicing and workover. Well performance and artificial lift.

ADVANCED OIL & GAS FIELD PROCESSING — 15 days

Module I: Thermodynamics applied to well effluent processing

- Well effluent. Ideal gas and real fluid behavior.
- Gas compression and expansion.
- Liquid-vapor equilibrium of pure components and mixtures. Mixture separation.
- Heat transfer, heat balance and thermal equipment.

Module II: Oil & water treatment

- Crude oil treatment: stabilization, dehydration, sweetening.
- Storage equipment.
- Reject and injection water treatment.

Module III: Gas processing & conditioning

- Gas processing: dehydration, sweetening, NGL recovery.
- Fundamentals of Liquefied Natural Gas (LNG) chain.

PIPING & INSTRUMENTED SYSTEMS — 5 days

Gathering networks design. Piping. Valves. Schematization of Oil & Gas production facilities. Metallurgy. Corrosion. Cathodic protection. Instrumentation & Process Control. Safety Instrumented Systems. Metering systems.

ROTATING MACHINERY - TECHNOLOGY, SELECTION & OPERATION (IN MECHANICAL WORKSHOP) — 5 days

Centrifugal and positive displacement pumps. Centrifugal and reciprocating compressors.
Gas turbines. Turbo-expanders.

OFFSHORE FIELD DEVELOPMENT - PIPELINES & FLOW ASSURANCE — 5 days

Context of offshore developments. Fixed and floating production structures. Construction and installation of platforms.
Pipelines: technology, laying and operation. Deep offshore developments. FSO & FPSO technology. Flow assurance & multi-phase flow.

PRODUCTION ACCOUNTING & MATERIAL BALANCE — 3 days

Measures and metering systems along the chain. Liquid and gas balances. Performance monitoring and production reporting.
Case study and production balances reconstruction: back allocation, satellite fields...

PETROLEUM ECONOMICS & PROJECT MANAGEMENT — 2 days

Project management. Project cost estimation and cost control. Fundamentals of contracts. Project profitability evaluation. Risk analysis of Exploration & Production projects.

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PROCESS SAFETY MANAGEMENT — 5 days

Process hazard analysis: HAZID, HAZOP. Operating procedures. Mechanical integrity. Organizational elements. Continuous improvement elements.

FIELD DEVELOPMENT PROJECT - JURY — 10 days

During this final project, participants will select field development scenario and architecture, design wells, evaluate well performances, design and simulate process, realize heat and mass balance and evaluate profitability of their project.
This 10-day teamwork project is a real case study based on actual data. Participants are coached throughout the project to produce the required deliverables, which are to be presented on the last day (jury):

- Field architecture. Well design and completion. Process design and simulation. Main equipment sizing. Heat and mass balance. Fuel gas requirements. HAZID and plant layout.

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Training - Flare Network Design Engineering

FLARE-EN-P | Face-to-face only | 5 days

This course aims to acquire a detailed understanding of relief systems and flare network, as well as the technology of main equipment involved and monitoring basics

Level

Knowledge

Public

Managers, engineers and technicians looking for technical information and understanding of flare network in Oil & Gas production facilities

Objectives

Attendees will be able to implement the following skills:

- Provide technical knowledge and practical approach of relief system and flare network in Oil & Gas processing facilities, as well as the technology and operating principle of the equipment used in these facilities
- Review the basics of Oil & Gas field protection against overpressure
- Detail the available process technologies allowing to respect reject regulations
- Select and size the key components of those networks
- Describe the technology of the main equipment used

Pedagogical & technical resources

- Numerous application exercises inspired from actual Oil & Gas production facilities
- Design practice on Aspen Flare System simulator

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF TYPICAL RELIEF & FLARE SYSTEMS — 0.5 day

Codes and standards typical in Oil & Gas facilities.
Safety implications and causes of overpressure.

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Overpressure source:

- Protection philosophy.
- Source isolation.
- Relief.

Environmental regulation and standards.

MECHANICAL SPECIFICATION OF PRESSURE VESSELS & HEAT EXCHANGERS — 0.75 day

Vessels codes and standards.
Material selection.
Metallurgy, heat effect and corrosion mechanism.
Design calculation for pressure vessels and heat exchangers.
Vessel integrity, evaluation according to the Oil & Gas standards.

RELIEF GAS SYSTEM OVERVIEW — 0.75 day

System equipment and components.
Relief gas parameters and process safety management.
Monitoring systems and procedures.
Blow down:

- Purpose.
- Operational consideration.
- Design and specification.

FLARE SYSTEM — 1.5 days

Flare gas recovery, smokeless flaring and purge gas conservation.
Defining need and quantity of purge gas.
Selection and design of key components:

- KO drum, vent and flare stack, vent and flare tips.
- Flare ignition systems.

Thermal oxidizers:

- Principle of operation.
- Components and equipment.

Radiation calculation.

CASE STUDY: FLARE SYSTEM SIZING — 1.5 days

Study of an existing plant.
Introduction to Aspen Flare System.
Design of the relief gas system and the corresponding flare network using Aspen Flare System.

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Training - Drilling Fluids

FLU-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of drilling fluids characteristics

Level

Knowledge

Public

Drilling and completion professionals involved in drilling and engineering in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- acquire a thorough knowledge of drilling fluid types, functions and applications
- asses the rheology of drilling fluids
- select the right equipment for solid removal
- carry out a troubleshooting
- communicate efficiently with a drilling specialist

Pedagogical & technical resources

- Exercises
- Application to a real case (project) for participants in the "Drilling & Completion Engineering" training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

FUNCTIONS OF DRILLING FLUIDS — 3 hours

PHYSICAL & CHEMICAL CHARACTERISTICS — 8 hours

Specific gravity.
Rheology.
Filtration.

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Alkalinity.
Chloride.
Hardness.

TYPES OF FLUIDS — 6 hours

Water base mud.
Oil base mud.

SHALE INHIBITION — 3 hours

Types of shale.
Chemical and physical inhibition.

MECHANICAL & WASTE TREATMENT — 4 hours

Function.
Selection of equipment and layout.
Separation ranges.
Overall efficiency.
Waste treatment:

- Solidification.
- Reinjection.
- Desorption.

TROUBLESHOOTING — 4 hours

Losses:

- Detection.
- Analysis and decision chart.
- Treatment.

Hole cleaning:

- Vertical well.
- Deviated and horizontal wells.

KNOWLEDGE ASSESSMENT — 2 hours

Sessions

Pau - From 03/08/2027 to 03/12/2027 **4420 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Completion Engineering

FOFPC-EN-P

Face-to-face only

58 days

This training course will take place in two parts, from January 19 to February 27 and from April 27 to June 5, 2026

This 2-part training course (see Additional information) provides an in-depth, practical understanding of completion techniques, operations, equipment and procedures

Level

Knowledge

Public

Young engineers involved in drilling and completion, supervisors, tool pushers

Objectives

Attendees will be able to implement the following skills:

- Assist in completion operations on site and, with some experience, manage those operations
- Define a completion program and, with some on-site experience, design and implement such program
- Pass the IWCF "Combined Surface/Subsurface BOP Stack" test

Pedagogical & technical resources

- Well control on a simulator
- Equipment and cutaway tools display
- Exercises, role-playing sessions and case studies
- Summary notes prepared and presented by the participants
- 10-day completion project, ending with a presentation to a jury
- Knowledge assessment on a weekly basis
- Upon successful completion of a knowledge test, the IWCF "Well Control" Certificate is delivered

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

MODULE 1 - GEOLOGICAL FIELD TRIP FOR DRILLERS	**5 days**
MODULE 2 - FUNDAMENTALS OF DRILLING & COMPLETION	**5 days**
MODULE 3 - WELL PRODUCTIVITY & RESERVOIR - WELLBORE INTERFACE	**5 days**
MODULE 4 - WELL COMPLETION EQUIPMENT & PROCEDURES FOR FLOWING WELLS	**5 days**
MODULE 5 - WELLBORE TREATMENTS	**5 days**
MODULE 6 - ARTIFICIAL LIFT & WELL INTERVENTION FUNDAMENTALS	**5 days**
MODULE 15 - WELL CONTROL	**5 days**
MODULE 16 - DEEPWATER DRILLING & DEVELOPMENT CERTIFICATION	**5 days**
MODULE 17 - SUPERVISOR TRAINING ON DRILLING SIMULATOR	**3 days**
MODULE 18 - HSE IN DRILLING OPERATIONS	**5 days**
MODULE 19 - DRILLING & COMPLETION PROJECT	**10 days**

Completion design.
Tubing calculations.
Fluids design.
Chronology of operations.
Presentation to a jury.

Sessions

Pau - From 01/18/2027 to 06/04/2027 **39680 €/HT**

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Training - Drilling and Completion Engineering

FOFP-EN-P | Face-to-face only | 90 days

This course provides an in-depth, practical understanding of drilling and completion techniques, operations, equipment and procedures

Level

Knowledge

Public

Young technicians, engineers involved in drilling and completion, supervisors, tool pushers, involved in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- Assist in drilling/completions operations on site and, with some experience, manage those operations
- Define a drilling/completion program and, with some on-site experience, design and implement such a program
- Pass the IWCF "Combined Surface/Subsurface BOP Stack" test

Pedagogical & technical resources

- Drilling simulator
- Well control on a simulator
- Equipment and cutaway tools display
- Exercises, role-playing sessions and case studies
- Summary notes prepared and presented by the participants
- 10-day drilling/completion project, ending with a presentation to a jury
- Site visits
- Knowledge assessment on a weekly basis

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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MODULE 1 - GEOLOGICAL FIELD TRIP FOR DRILLERS	**5 days**
MODULE 2 - FUNDAMENTALS OF DRILLING & COMPLETION	**5 days**
MODULE 3 - WELL PRODUCTIVITY & RESERVOIR - WELLBORE INTERFACE	**5 days**
MODULE 4 - WELL COMPLETION EQUIPMENT & PROCEDURES FOR FLOWING WELLS	**5 days**
MODULE 5 - WELLBORE TREATMENTS	**5 days**
MODULE 6 - ARTIFICIAL LIFT & WELL INTERVENTION FUNDAMENTALS	**5 days**
MODULE 7 - WELL ARCHITECTURE & EQUIPMENT	**5 days**
MODULE 8 - DRILLING FLUIDS	**5 days**
MODULE 9 - CEMENTING PRACTICES	**5 days**
MODULE 10 - BIT, DRILL STRING & FISHING WHILE DRILLING	**5 days**
MODULE 11 - DIRECTIONAL & HORIZONTAL DRILLING CERTIFICATION	**5 days**
MODULE 12 - RIG & BOP'S & WELL CONTROL EQUIPMENT	**5 days**
MODULE 13 - DATA ACQUISITION DURING DRILLING OPERATIONS	**5 days**
MODULE 14 - WELL CONTROL	**5 days**
MODULE 15 - DEEPWATER DRILLING & DEVELOPMENT CERTIFICATION	**5 days**
MODULE 16 - HSE IN DRILLING OPERATIONS	**5 days**
MODULE 17 - DRILLING & COMPLETION PROJECT	**10 days**

Well architecture.
Completion design.
Casing and tubing calculations.
Fluids and cementing design.
Chronology of operations.
Presentation to a jury.

Sessions

Pau - From 08/10/2026 to 12/11/2026	**58780 €/HT**
Pau - From 01/18/2027 to 06/04/2027	**67800 €/HT**

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Training - Drilling Engineering

FOFPF-EN-P

Face-to-face only

83 days

This training course will take place in two parts, from January 19 to February 6 and from March 2 to June 5, 2026

This 2-part training course (see Additional information) provides an in-depth, practical understanding of drilling techniques, operations, equipment and procedures

Level

Knowledge

Public

Young technicians, engineers involved in drilling and completion, supervisors, tool pushers, involved in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- Assist in drilling operations on site, and, with some experience, manage those operations
- Define a drilling program; and, with some on-site experience, design and implement such a program
- Pass the IWCF "Combined Surface/Subsurface BOP Stack" test

Pedagogical & technical resources

- Drilling simulator
- Well control on a simulator
- Equipment and cutaway tools display
- Exercises, role-playing sessions, and case studies
- Summary notes prepared and presented by the participants
- 10-day drilling project, ending with a presentation to a jury
- Site visits
- Knowledge assessment on a weekly basis
- Upon successful completion of a knowledge test, the IWCF "Well Control" Certificate is delivered

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the

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specific needs of learners from the professional world

Program

MODULE 1 - GEOLOGICAL FIELD TRIP FOR DRILLERS	**5 days**
MODULE 2 - FUNDAMENTALS OF DRILLING & COMPLETION	**5 days**
MODULE 3 - WELL PRODUCTIVITY & RESERVOIR - WELLBORE INTERFACE	**5 days**
MODULE 7 - WELL ARCHITECTURE & EQUIPMENT	**5 days**
MODULE 8 - DRILLING FLUIDS	**5 days**
MODULE 9 - CEMENTING PRACTICES	**5 days**
MODULE 10 - BIT, DRILL STRING & FISHING WHILE DRILLING	**5 days**
MODULE 11 - DIRECTIONAL & HORIZONTAL DRILLING CERTIFICATION	**5 days**
MODULE 12 - RIG & BOP'S & WELL CONTROL EQUIPMENT	**5 days**
MODULE 13 - WELL TEST OPERATION	**5 days**
MODULE 14 - DATA ACQUISITION DURING DRILLING OPERATIONS	**5 days**
MODULE 15 - WELL CONTROL	**5 days**
MODULE 16 - DEEPWATER DRILLING & DEVELOPMENT CERTIFICATION	**5 days**
MODULE 17 - SUPERVISOR TRAINING ON DRILLING SIMULATOR	**3 days**
MODULE 18 - HSE IN DRILLING OPERATIONS	**5 days**
MODULE 19 - DRILLING PROGRAM	**10 days**

Well architecture.
Casing calculations.
Fluids and cementing design.
Chronology of operations.
Presentation to a jury.

Sessions

Pau - From 01/18/2027 to 06/04/2027 **57630 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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Training - New technologies: completion, HPHT and MPD

FORNTEC-EN-P | Face-to-face only | 5 days

To provide some knowledge related to well complex completion, MPD and HPHT operations

Level
Skilled

Public
Drilling/completion/fluid engineers, supervisors involved in drilling and completion operations

Objectives
Attendees will be able to implement the following skills:

- Work on complex completion issues
- Design the corresponding completion procedure
- Understand use of MPD and why (equipment and technique)
- Understand specificities and associated measures of HPHT wells

Pedagogical & technical resources

- Some equipment and cutaway tools display available at IFP
- Summary notes prepared and presented by participants
- Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ADVANCED COMPLETION — 1 day

Subsea smart completion: objectives, technology description and implantation.
Multilateral completion.
Single trip multizone gravel pack system: introduction, dual string and single string, BJ & Halliburton comparison, offshore wells operation BJ MST system key components.
Tubingless completion: objectives, tubingless well architecture and equipment innovation.

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Would it make sense to add a word about WABs? Cementless expandable lower completion?

HPHPT WELLS — 1.5 days

HPHPT definitions:

- API.
- Other standards.
- TotalEnergie.
- PP/FP profiles: narrow mud windows notion, reservoirs (geomechanics and effect of depletion), pressure transition zone (PTZ).

Basic design engineering:

- Casing design specific to HPHT (thermal simulations/introduction to limit-state and reliability based design/survival loads).
- OCTG choice (material grade, SSC, qualification).
- OCTG connector choice (test and qualification).
- Well equipment (liner, wellheads, casing hangers...).
- Subsea HPHT specificities (wellhead fatigue, X-Mas tree choice, introduction to APB).
- Annulus management systems (N2 cushion, burst discs, crushable foams...).
- Well architecture specificities of HPHT well. Real case presentation.

Advanced HPHT well engineering:

- Casing wear (modeling, measurement, remedial).
- Wellhead growth (modeling and impacts, heat island effect).
- Fluids and cement aspects of HT environments (mud weight reference at 50°C).
- Kick tolerance modeling (dispersed modeling w/drill bench or equivalent, limitations of single bubble in HPHT).
- Hydraulic modeling in HPHT operations.
- Logging (current HT limitations on MWD tooling).
- Infill drilling.

Operational preparation

- Rig inspection program for HPHT operations.
- Importance of bridging document/JDM between contractor and operator.
- Equipment specific to HPHT (mud coolers, kick assembly, dart sub, MPD...).
- Hydrates (formation mechanisms, prevention).
- HPHT checklists (example supplied).
- HPHT procedures (pit management and discipline, breaking circulation, connections, Horner plot flow checks, tripping procedures, pump out of hole or stripping if MPD).

Operational execution

- ECD management.
- Wellbore breathing (breathing vs. influx, loss-gain scenarios, supercharging mechanisms, fracture...).
- Well control aspects.
- LOT/FIT in HPHT.
- Mud weight management.
- Fingerprinting (dummy) connections, swab and surge, compressibility test, drain back/flow volume...).
- Case studies (HPHT train wrecks, database analysis of exploration and development wells).

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MANAGED PRESSURE DRILLING — 2 days

Introduction:

- Definition (IADC), history and objectives.
- Why using MPD?
- Surface back pressure (SBP) introduction.

Main components and layout:

- Rotating control device (RCD).
- Choke manifold including Coriolis mass flow meter (example of real layout).
- Drill pipe non return valves.

MPD operations with RCD:

- Drilling: difficulties to differentiate “well breathing-supercharge” and an “influx”; management of the surface back-pressure (manual, SBP mode, APC mode, “C” mode); use of PWD; kick detection (EKD, virtual trip tank); limitations and risks, well control matrix.
- Tripping/stripping: POOH (adjusting SBP); temperature effect mud weight (static and dynamic temperatures), mitigation; mud cap, why and when, risks and limits; RIH; procedure example.
- Dynamic fit/lot: principles, dynamic FIT with PWD, dynamic LOT with PWD and Coriolis flow meter, real time SBP setting.
- Dynamic pore pressure (pp) assessment: principle, SBP and AFL, MW adjustment for drilling and tripping/stripping.
- Casing RIH and cementing: case study.

Conclusion:

- Advantages of MPD.
- Risks and limitations.

KNOWLEDGE ASSESSMENT — 0.5 day

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Training - Supervisor on Drilling Simulator

FOSIM-EN-P | Face-to-face only | 5 days

This training is designed to help participants understand, manage, analyze and respond properly to a variety of situations It also helps to remind good practices for the main operations on site by referring to rules (company rules, other API/NORSOK standards, common sense)

Level

Skilled

Public

Personnel of operators, contractors and service companies who will be involved in geothermal, water, storage or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- prepare the instructions for a given situation using checklists if needed, with the references to the company rules
- manage a prejob safety meeting prior to commence an operation
- follow the operations and control the important parameters
- detect potential problems and react properly using a decision tree if necessary
- manage the problems and adapt the program to the situation (Management Of Change)

Pedagogical & technical resources

- Short reminder in a classroom and application in real-life working conditions on Drilling Simulators
- Systematic debriefing with trainees at the end of each day
- Scenarios can be tailor made according to the needs of the client and the level of the trainees

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

COMMON OBJECTIVES FOR ALL EXERCISES

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Reminders of the good practice and the company rules (if any).
Work on the simulators with various situations.
Analyze the situations.
Prepare the instructions.
Manage the prejob/safety meetings.
Follow the ongoing operations.
Detect potential problems.
React properly.
Adapt the program if needed.

TRIPPING 3 hours

Work on the simulators with various situations, prepare the program for the trip or wiper trip in a vertical and deviated well, follow the ongoing operations, drags, torque, swabbing, back reaming, pump out of hole, detect potential problems.

CASING OPERATION 3 hours

Work with various situations, prepare the program to run the casing in the hole, follow the ongoing operations, filling up the casing, drags, surging, detect potential problems, and react properly.

CEMENTING OPERATION 3 hours

Prepare the program for the cementing job in various situations, follow the ongoing operations, regular cement job, kick while cementing, losses and detect potential problems if any, react properly and adapt the program if needed.

LOT & ELOT 3 hours

Prepare the program for the integrity test of the formation, follow the ongoing operations, FIT, LOT, ELOT, detect potential problems, react properly and adapt the program if needed.

CIRCULATION, HOLE CLEANING 3 hours

Work on the simulators with various hole cleaning issues, prepare the program, follow the ongoing operations, PUW, SOW, FRW, ECD, SPP, detect potential problems of hole cleaning, react properly and adapt the program if needed by changing or adjusting hydraulic parameters.

LOSSES 3 hours

Analyze the situation, follow the ongoing operations, drilling, RIH, circulation, detect potential problems of losses (partial or total losses), react properly, adapt the program if needed.

STUCK PIPE 3 hours

Work on the simulators with various stuck pipe situations, follow the ongoing operation, drilling, POOH, jarring, detect potential problems (key seat, differential pressure sticking, packoff), react properly and free the string.

WELL CONTROL IN HORIZONTAL WELL 3 hours

Manage the operations to kill a well with a kick in a horizontal profile.

SHALLOW GAS 3 hours

Work on the simulators with various situations leading to a shallow gas kick, prepare the program to anticipate the problem, follow the ongoing operation, drilling of the top hole, pilot hole, detect potential problems, kick while drilling, kick during pipe connection, kick while POOH, react properly with dynamic killing procedure and diverter use.

WELL CONTROL WITH CP>MAASP 3 hours

Kick exceeding kick tolerance, manage the killing operation, follow the ongoing operation, kick circulation, detect potential problems when CP close to MAASP, react properly avoiding fracture of the formation if possible

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and managing the BHP.
Remark: this list is not complete and various other scenarios are available and can be created at the request of the client.

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Training - IWCF Well Control - Level 2

FPE2-EN-D | Distance only | 5 days

The IWCF Well Control Level 2 Introductory training is designed to raise participants' awareness of blowout risks and consequences, while equipping them to understand the causes of a kick and master well control methods

Level

Knowledge

Public

Personnel who have had no training in well control or for young recruits who will be involved in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- Understand the impact and consequences of a blowout
- Identify the causes of a kick
- Know the equipment to secure the well after a kick
- Have knowledge of the well control methods
- To be certified IWCF Level 2

Pedagogical & technical resources

- Teaching material (PPT, PDF, Word)
- Exercise book
- Simulator demonstration (if available): kick while drilling and circulation of this influx
- IWCF certified instructor

Assessment of achievements

IWCF Level 2 examination tests

Prerequisites

IWCF requires a minimum lead time of 10 business days to validate and confirm registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRESSURES IN THE WELL — 0.75 day

Hydrostatic pressure, pressure losses, gas law.
Circulation with the well open and with the well shut in.
Relationships between pressures in the well.

PORE PRESSURE & FRACTURE PRESSURE — 0.25 day

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Overburden pressure.
LOT and FIT.
Pore pressure and frac pressure.

KICK DETECTION — 1 day

Impact and consequences of a kick.
Causes and signs of a kick, well shut-in methods and shut in pressures.
Kick drills, trip sheet, kill sheet.

INTRODUCTION TO WELL CONTROL METHODS — 0.5 day

Principles and procedures.
Drillers, wait and weight, volumetric methods.

WELL CONTROL EQUIPMENT — 1 day

Barriers' principle (Norsok standards).
BOP stack and BOP control unit.
Choke-manifold, mud-gas separator, etc.
Function test, pressure test, inflow test.

SUBSEA EQUIPMENT — 0.5 day

Specific equipment of subsea BOP.
Problems related to floating rigs.

SIMULATOR — 0.5 day

Layout of the well control equipment used on rig floor.
Demonstration: kick while drilling and circulation of this kick.

IWCF CERTIFICATION — 0.5 day

Test on principles and procedures.
Test on well control equipment.

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Training - IWCF Well Control - Level 2

FPE2-EN-P | Face-to-face only | 5 days

The IWCF Well Control Level 2 Introductory training is designed to raise participants' awareness of blowout risks and consequences, while equipping them to understand the causes of a kick and master well control methods

Level

Knowledge

Public

Personnel who have had no training in well control or for young recruits who will be involved in water, geothermal or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- Understand the impact and consequences of a blowout
- Identify the causes of a kick
- Know the equipment to secure the well after a kick
- Have knowledge of the well control methods
- To be certified IWCF Level 2

Pedagogical & technical resources

- Teaching material (PPT, PDF, Word)
- Exercise book
- Simulator demonstration (if available): kick while drilling and circulation of this influx
- IWCF certified instructor

Assessment of achievements

IWCF Level 2 examination tests

Prerequisites

IWCF requires a minimum lead time of 10 business days to validate and confirm registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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LOT and FIT.
Pore pressure and frac pressure.

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Impact and consequences of a kick.
Causes and signs of a kick, well shut-in methods and shut in pressures.
Kick drills, trip sheet, kill sheet.

INTRODUCTION TO WELL CONTROL METHODS — 0.5 day

Principles and procedures.
Drillers, wait and weight, volumetric methods.

WELL CONTROL EQUIPMENT — 1 day

Barriers' principle (Norsok standards).
BOP stack and BOP control unit.
Choke-manifold, mud-gas separator, etc.
Function test, pressure test, inflow test.

SUBSEA EQUIPMENT — 0.5 day

Specific equipment of subsea BOP.
Problems related to floating rigs.

SIMULATOR — 0.5 day

Layout of the well control equipment used on rig floor.
Demonstration: kick while drilling and circulation of this kick.

IWCF CERTIFICATION — 0.5 day

Test on principles and procedures.
Test on well control equipment.

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Training - IWCF Well Control - Level 3 or 4

FPE3&4-EN-D | Distance only | 5 days

The IWCF Well Control Level 3&4 training is designed to empower participants to recognize blowout risks and consequences, while equipping them to analyze the causes of kicks, master well control techniques, and operate equipment effectively

Level

Skilled

Public

Personnel involved in water, geothermal or oil/gas drilling operations linked to the detection of a kick and well control methods (drilling engineers, mud engineers, supervisors, tool pushers, drillers, assistant drillers, etc.)

Objectives

Attendees will be able to implement the following skills:

- Understand the causes of the kicks, identify and calculate the different pressures in a well
- Recognize/analyze the signs of a kick to shut in the well with the minimum volume of gain
- Know the well control methods and demonstrate the ability to shut in the well (driller) and killing the well (supervisor)
- Detect possible incidents during the well control and react correctly
- To be certified IWCF Level 3 or 4 on well control

Pedagogical & technical resources

- Course material (PPT, PDF, Word)
- Exercise book
- Practice on simulator
- Certified IWCF instructor

Assessment of achievements

- IWCF Level 3 or 4 examination tests
- Practical assessment on simulator at driller or supervisor level

Prerequisites

The certification Level 2 is recommended for a first IWCF certification
A minimum of 10 working days is required by IWCF to validate the registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INITIAL TEST ON WELL CONTROL — **0.25 day**

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PRESSURE ANALYSIS & KICK CONTROL — 0.75 day

Reminder on hydrostatic and hydrodynamic pressures.
Relationship between various pressures in the well.
Definition of gas law and migration.
Causes and signs of abnormal pore pressure.
Frac pressure and MAASP (LOT and FIT).
Causes and signs of a kick, impact of WBM or NABM.
Precautions to be taken to avoid kicks.

WELL CONTROL — 1.75 days

Procedures to follow in case of a kick while drilling or tripping (surge and swab).
Well shut-in methods: hard and soft methods.
Observation and evolution of pressures after shut in and selection of the stabilized pressures.
Exercises on “Kill sheet”.
Well control methods to control a kick:

- Driller's method.
- Wait and weight method.

Comparison/differences between each method (advantages and drawbacks).

PARTICULAR CASES — 0.25 day

Incidents during circulation.
Shallow gas.
Volumetric method.
MAASP.
Deviated well.
Kick while running casing or during cement jobs.

SURFACE WELL CONTROL EQUIPMENT — 0.5 day

BOP stack: types, annular BOP, BOP rams, etc.
Diverter.
BOP control unit (“Koomey” unit).
Choke-manifold and remote choke control panel.
Mud-gas separators.
Function tests and pressure tests.

EXERCISES — 0.25 day

Practice on simulator as requested by IWCF.
Exercises on: principles and procedures, kill sheet and well control equipment.

SUBSEA SPECIFICITIES — 0.25 day

Difference between surface and subsea BOP.
Specific equipment between seabed and rig floor.
Well control with a subsea BOP (friction losses in choke line).
Riser margin.
Subsea BOP control unit.

IWCF CERTIFICATION — 1 day

Test on principles and procedures.
Test on well control equipment.
Practical assessment on simulator.

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Sessions

Classe virtuelle -	From 10/05/2026 to 10/09/2026	**2800 €/HT**
Classe virtuelle -	From 10/04/2027 to 10/08/2027	**2860 €/HT**

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Training - IWCF Well Control - Level 3 or 4

FPE3&4-EN-P | Face-to-face only | 5 days

The IWCF Well Control Level 3&4 training is designed to empower participants to recognize blowout risks and consequences, while equipping them to analyze the causes of kicks, master well control techniques, and operate equipment effectively

Level

Skilled

Public

Personnel involved in water, geothermal or oil/gas drilling operations linked to the detection of a kick and well control methods (drilling engineers, mud engineers, supervisors, tool pushers, drillers, assistant drillers, etc.)

Objectives

Attendees will be able to implement the following skills:

- Understand the causes of the kicks, identify and calculate the different pressures in a well
- Recognize/analyze the signs of a kick to shut in the well with the minimum volume of gain
- Know the well control methods and demonstrate the ability to shut in the well (driller) and killing the well (supervisor)
- Detect possible incidents during the well control and react correctly
- To be certified IWCF Level 3 or 4 on well control

Pedagogical & technical resources

- Course material (PPT, PDF, Word)
- Exercise book
- Practice on simulator
- Certified IWCF instructor

Assessment of achievements

- IWCF Level 3 or 4 examination tests
- Practical assessment on simulator at driller or supervisor level

Prerequisites

The certification Level 2 is recommended for a first IWCF certification
A minimum of 10 working days is required by IWCF to validate the registration for the session

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INITIAL TEST ON WELL CONTROL — **0.25 day**

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PRESSURE ANALYSIS & KICK CONTROL — 0.75 day

Reminder on hydrostatic and hydrodynamic pressures.
Relationship between various pressures in the well.
Definition of gas law and migration.
Causes and signs of abnormal pore pressure.
Frac pressure and MAASP (LOT and FIT).
Causes and signs of a kick, impact of WBM or NABM.
Precautions to be taken to avoid kicks.

WELL CONTROL — 1.75 days

Procedures to follow in case of a kick while drilling or tripping (surge and swab).
Well shut-in methods: hard and soft methods.
Observation and evolution of pressures after shut in and selection of the stabilized pressures.
Exercises on “Kill sheet”.
Well control methods to control a kick:

- Driller's method.
- Wait and weight method.

Comparison/differences between each method (advantages and drawbacks).

PARTICULAR CASES — 0.25 day

Incidents during circulation.
Shallow gas.
Volumetric method.
MAASP.
Deviated well.
Kick while running casing or during cement jobs.

SURFACE WELL CONTROL EQUIPMENT — 0.5 day

BOP stack: types, annular BOP, BOP rams, etc.
Diverter.
BOP control unit (“Koomey” unit).
Choke-manifold and remote choke control panel.
Mud-gas separators.
Function tests and pressure tests.

EXERCISES — 0.25 day

Practice on simulator as requested by IWCF.
Exercises on: principles and procedures, kill sheet and well control equipment.

SUBSEA SPECIFICITIES — 0.25 day

Difference between surface and subsea BOP.
Specific equipment between seabed and rig floor.
Well control with a subsea BOP (friction losses in choke line).
Riser margin.
Subsea BOP control unit.

IWCF CERTIFICATION — 1 day

Test on principles and procedures.
Test on well control equipment.
Practical assessment on simulator.

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Sessions

Pau - From 09/07/2026 to 09/11/2026	**2800 €/HT**
Pau - From 11/30/2026 to 12/04/2026	**2800 €/HT**
Pau - From 03/01/2027 to 03/05/2027	**2860 €/HT**
Pau - From 05/10/2027 to 05/14/2027	**2860 €/HT**
Pau - From 09/06/2027 to 09/10/2027	**2860 €/HT**
Pau - From 11/29/2027 to 12/03/2027	**2860 €/HT**

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Training - Field Processing and Surface Production Facilities

FPSPF-EN-P | Face-to-face only | 10 days

This course provides a comprehensive understanding of onshore and offshore Oil & Gas field processing techniques, along with knowledge of technology and operating principles of surface production facilities equipment

Level

Knowledge

Public

Engineers and technicians interested in onshore and offshore Oil & Gas field processing technology and equipment

Objectives

Attendees will be able to implement the following skills:

- Grasp fundamentals of Oil & Gas production techniques
- Explain operating principles and conditions of oil, water and gas treatment
- Detail the technology of main equipment and specifities of offshore production techniques
- Ascertain fundamentals of process control, draw a typical safety system layout
- Explain main metering techniques, corrosion issues, its prevention and monitoring

Pedagogical & technical resources

- Very interactive training by industry specialists
- Numerous applications and illustrations

Through our LMS, the following are shared or made available :

- Introductory content a few days before the virtual class, to save time and efficiency
- Training material, applications and additional content

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WELL EFFLUENTS BEHAVIOR — 0.5 day

Different types of well effluent. Main characterization parameters. Liquid/vapor equilibrium of pure substances and mixtures. Effluent behavior. Constituents that pose problems for storage, transport or commercialization. Main specifications to conform with and required treatments.

FUNDAMENTALS OF RESERVOIR & DRIVE MECHANISM — 0.25 day

Reservoirs: types, exploration techniques. Drive mechanisms. Enhanced Oil Recovery (EOR): aim and principle of the main techniques.

FUNDAMENTALS OF DRILLING, COMPLETION & WELL PERFORMANCE — 0.5 day

Drilling principle. Case of offshore drilling. Main completion equipment.
Well performance. Needs for artificial lift: principle of artificial lift by pumping, gas lift...

CRUDE OIL PROCESSING — 1.25 days

Crude stabilization by Multi Stage Separation (MSS). Management of foam issues. Crude dehydration and desalting. Emulsion treatment.
Crude sweetening (H2S removal).
Examples of oil treatment and associated gas compression process schemes.

PRODUCTION & INJECTION WATER TREATMENT — 1 day

Quality requirements for production water. Environment related constraints.
Main produced water treatments: API oil-water separators, plate separators, flotators, hydrocyclones...
Reasons for water injection.
Quality requirements and necessary treatments: chlorination, filtration, oxygen removal, sulfate removal.
Examples of process schemes for production and injection water treatment.

GAS PROCESSING & CONDITIONING — 1.5 days

Inhibition of hydrate formation: injection of MeOH, MEG, DEG, LDHI...
Gas dehydration (drying): TEG units, solid desiccants (molecular sieves) units.
Gas sweetening. Acid components (H2S and CO2) removal: amine units, molecular sieves, membranes. Natural Gas Liquids (NGL) extraction: use of cryogenic refrigeration, Joule-Thompson expansion, turbo-expander.
Funfamentals of Liquefied Natural Gas (LNG) chain.

CASE OF OFFSHORE DEVELOPMENTS – FLOW ASSURANCE — 1 day

- Main flow assurance issues. Multiphase flow.

Case studies: gas condensate field development; deep-offshore production.
Offshore production structures: jacket, semi-submersible, spar, TLP, FPSO...
Storage and offloading vessels (FSO, FPSO, FPU, buoy...).
Deep offshore developments. Examples of subsea architecture. Flow assurance in (deep) offshore developments.
Main preservation techniques and pigging solutions.

ROTATING MACHINERY — 1 day

Fundamentals of pumping circuits and gas compression. Operating principles, technology, selection criteria, performances and operating conditions of centrifugal & volumetric pumps and centrifugal & reciprocating compressors. Gas turbines. Turbo-expanders.

THERMAL EQUIPMENT — 0.5 day

Heat exchangers, air coolers, furnaces: types, operation, technology.

FUNDAMENTALS OF CORROSION — 0.5 day

Different types of corrosion, prevention and monitoring.

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ELECTRICAL SYSTEMS - INSTRUMENTATION & PROCESS CONTROL - SAFETY SYSTEMS — 1.5 days

Electrical power generation. Electrical power distribution network and equipment.
Field instrumentation; controllers; control loop structures: simple, cascade, split range.
Distributed Control System (DCS). Safety Instrumented Systems (SIS): Emergency ShutDown Systems ESD, High Integrity Pressure Protection System (HIPPS), fire and gas system.

METERING & ALLOCATION — 0.5 day

Importance of metering and production allocation. Production accounting & material balance. Introduction to material balances: liquid and gas balances. Transactional metering of liquids and gas. Multi-phase metering: advantage, principle and fields of application.

Sessions

Rueil-Malmaison - From 11/23/2026 to 12/04/2026 — **8270 €/HT**

Rueil-Malmaison - From 11/22/2027 to 12/03/2027 — **8460 €/HT**

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Training - Fracture and Fault Modeling Workshop with FracaFlow™

FRACA-EN-P | Face-to-face only | 4 days

This course provides participants with proficient skills for the modeling using a software dedicated to fractured reservoir characterization and modeling

Level

Skilled

Public

Geoscientists and reservoir engineers involved in development of naturally fractured reservoirs

Objectives

Attendees will be able to implement the following skills:

- Participants will be able to apply the workflow to characterize and model the fracture network in a reservoir model

Pedagogical & technical resources

- Interactive presentations, practical exercises and hands-on activities using FracaFlow™
- Software used during workshops: with courtesy of Beicip-Franlab

Assessment of achievements

- Les stagiaires sont évalués au long de la formation au travers de phases applicatives et d'échanges avec le formateur
- Une évaluation à chaud peut également être effectuée en fin de formation et/ou en fin de module par des tests visant à vérifier la compréhension et l'intégration par les apprenants des connaissances correspondant aux objectifs de la formation

Prerequisites

Knowledge in Geosciences

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION & DATA IMPORT (“NF” CASE STUDY) — 0.5 day

Theoretical notions about fractured reservoirs.
Overview of OpenFlow™ platform.
Study creation, settings, 1D-2D-3D views.
Data import: reservoir grid, horizons, faults, wells and related data.

FRACTURED & FAULT CHARACTERIZATION (“NF” CASE STUDY) — 0.5 day

Fracture analysis at wells: orientation, dispersion, sets creation.
Fracture density computation.

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Fault analysis: length, spatial distribution, sets creation, attribute maps.

MODELING, CALIBRATION, EQUIVALENT PARAMETERS COMPUTATION (“NF” CASE STUDY) — 1 day

Fracture and fault modeling/DFN generation:

- Diffuse fractures and faults.
- Quality control.

Equivalent parameters computation: full field analytical upscaling.
Calibration with KH data.
Dynamic simulations: flowmeter, well test simulation.

DATA IMPORT, DYNAMIC & GEOLOGICAL ANALYSES (“MEMBER” CASE STUDY) — 1 day

Data import.
Dynamic analyses.
Mud loss, flowmeter, well test, production data.
Fracture analysis, fault analysis.

MODELING, EQUIVALENT PARAMETERS COMPUTATION ANALYSES (“MEMBER” CASE STUDY) — 1 day

Fracture and fault modeling/DFN generation.
Diffuse fractures and sub-seismic faults.
Quality control.
Equivalent parameters computation for fracture network (Phi Block size, Kx, Ky, Kz).
Local analytical upscaling.
Full field analytical upscaling.

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Training - Basic Hydraulic Fracturing

FRAC-EN-P | Face-to-face only | 5 days

This course provides a comprehensive overview of hydraulic fracturing operations

Level

Knowledge

Public

Drilling, completion or production engineers, supervisors, laboratory staff, not specialized in wellbore treatment

Objectives

Attendees will be able to implement the following skills:

- understand the reasons to use hydraulic fracturing
- identify the impact of fracturing parameters on well productivity
- design hydraulic fracturing operations: materials, equipment and procedures used for fracturing
- supervise the hydraulic fracturing operations
- assess and measure the success of these operations

Pedagogical & technical resources

- Numerous videos and animations
- Practical exercises

Assessment of achievements

- Les stagiaires sont évalués au long de la formation au travers de phases applicatives et d'échanges avec le formateur
- Une évaluation à chaud peut également être effectuée en fin de formation et/ou en fin de module par des tests visant à vérifier la compréhension et l'intégration par les apprenants des connaissances correspondant aux objectifs de la formation

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO HYDRAULIC FRACTURING — 0.5 day

Productivity index, skin effect, flow efficiency.
Damage in the formation and in the pack.
Candidate selection.

DESCRIPTION OF THE PROCESS — 0.5 day

In situ stress, fracture orientation and fracture propagation.

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Different types of pressures: net pressure, tortuosity, friction.
Fluid leak-off, slurry efficiency, dimensionless fracture conductivity.

FRACTURING FLUIDS, PROPPANTS & FRACTURE CONDUCTIVITY — 1 day

Types of fracturing fluids.
Types of proppants.
Fluid and proppant selection.

INPUT & FRACTURE DESIGN — 1 day

Requirement for fracture design.
Fracture growth analysis.
Hydraulic fracturing models.

EQUIPMENT & PLACEMENT TECHNIQUES — 1 day

Surface pumping equipment.
Placement techniques in vertical and horizontal wells.
Planning and executing operation.

FLOW BACK, FRACTURE MAPPING & POST-JOB ANALYSIS — 0.75 day

Flow back techniques: wellhead isolation tool, frac valve.
Mapping: well test, tracer and micro-seismic.
Post-job evaluation.
Environmental considerations

CONCLUSION, ASSESSMENT & FEEDBACK — 0.25 day

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Training - Naturally-Fractured Reservoirs: Static and Dynamic Modeling

FRACMOD-EN-P | Face-to-face only | 5 days

This course provides a clear and relevant workflow integrating geophysical, geological and engineering data to develop reservoir models for Naturally-Fractured Reservoirs (NFR). The course covers the geological aspects of natural fractures and their impact on the reservoir performance

Level

Skilled

Public

Geophysicists, geologists and reservoir engineers involved in integrated reservoir studies, geomodelers involved in fractured reservoirs looking for a full integration of all available data. Clastics, carbonates or shale play, the natural fractures will play a major role

Objectives

Attendees will be able to implement the following skills:

- Build a predictive 3D fracture model, constraining the model with the dynamic data
- Use neural network in order to recognize what controls the fractures density
- Identify sweet spots
- Generate porosity and permeability models for dynamic reservoir simulation
- Practice reservoir simulation and apply history matching techniques

Pedagogical & technical resources

- Short lectures alternating with hands-on practice on a real case study dataset, using a dedicated software tool for fractured reservoir modeling: FRACPREDICTOR™
- Software used during workshops: with courtesy of GoGeo Engineering

Assessment of achievements

- Les stagiaires sont évalués au long de la formation au travers de phases applicatives et d'échanges avec le formateur
- Une évaluation à chaud peut également être effectuée en fin de formation et/ou en fin de module par des tests visant à vérifier la compréhension et l'intégration par les apprenants des connaissances correspondant aux objectifs de la formation

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION TO FRACTURED RESERVOIR — 0.5 day

Introduction.
Types of fracture and their effects.
Fractured anticlines and fractures on cores.
Fractures effect on reservoir quality.

MODELING FRACTURED RESERVOIRS TECHNIQUES — 1 day

Discrete Fracture Network (DFN).
Continuous Fracture Model (CFM).
Fracture model calibration.

INTEGRATED WORKFLOW FOR MODELING NFR — 1.5 days

Seismic attributes for fracture modeling.
3D application on the Tensleep data.

NATURALLY FRACTURED RESERVOIR ENGINEERING — 2 days

Production problems.
Well testing in fractured reservoirs.
Reservoir simulation in fractured reservoirs.

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Training - The Essentials for Field Operators

FTBO-EN-P | **Face-to-face only** | **40 days**

This course provides operators with the knowledge and know-how required for safe, efficient and reliable field operations

Level

Knowledge

Public

- Operators of oil refineries or chemical plants, without any operator certification background
- Technicians or staff to be retrained as operators in the chemical, petrochemical or oil industries

Objectives

Attendees will be able to implement the following skills:

- Specify the elements of communication that allow you to work effectively in a team
- List the monitoring points of a unit
- List the types of operations of a unit
- Identify risks to equipment
- List unit settings to optimize production and product quality
- Identify possible causes of process disruption
- Specify the points to be taken into account in order to prepare, start up and shut down a unit

Pedagogical & technical resources

- IFP Training classroom training uses interactive delivery methods (tutorials, case studies, role playing)
- During classroom training, short practical on-site exercises on specific pieces of equipment
- In between IFP Training classroom modules, On-the-Job Orientation on Clients' assigned unit

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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PIPING - VESSELS - STORAGE TANKS - DRAWINGS — 6 days

Valves, fittings, flexible hoses, safety devices/interlocks. Vessels, storage tanks. Identification symbols for various items of equipment.
Block diagrams, flow sheet, P&ID. Introduction to isometric drawings.

- Field applications: equipment recognition, practical exercise of line-plotting, demonstration equipment in the workshop (when available).

INSTRUMENTATION & CONTROL DEVICES — 7 days

Physical variables used in process operations (pressure, temperature, flowrate, density, specific gravity).
Components of a control loop. Instrumentation: workings and operation.

- Field applications: practical exercise on control loops, demonstration loops (if available), work on Man-Machine Interface in control room.

HEAT EXCHANGE EQUIPMENT — 7 days

Heat, energy and heat transfer. Heat exchangers: technology, main types, workings and operation.

- On-site practical exercise on a heat exchanger.

Furnaces and boilers: technology, combustion, draft and operation.

- On-site practical exercise on furnaces/boilers.

ROTATING MACHINERY — 8 days

Fluid flows.

- Rotating machinery field recognition.

Centrifugal and positive displacement pumps.

- On-site practical exercise on pumps.

Centrifugal and reciprocating compressors.
Single stage, back-pressure steam turbines.

- On-site practical exercise on a compressor or turbine.

Electric motors operation.
Extruder.

PROCESSES - PRODUCTS - SAMPLING & TESTING - UTILITIES — 5 days

Basic chemistry. Chemical products and chemical solutions: composition and hazards.
Chemical reactions.
Vapor pressure and boiling point.
Distillation: principles of the separation, distillation columns.
Products. Quality control tests. Sampling.
Principles of manufacturing processes.
Notion of material and heat balance.
Manufacturing process diagram.
Utilities: flare network, wastewater treatment, cooling water, air production.

- On-site practical exercise on different processes (main equipment, operating conditions).

OPERATORS' TOOLS - SKILLS & ORGANIZATION — 2 days

Plant documentation: inventory, content, usage.
Radio communication. Teamwork.
Reporting and handover duties.

- Role plays.

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SAFETY — 5 days

Product hazards: flammability, toxicity, physical hazards.

- Job Safety Analysis for field operators' routine activity (equipment check, circuit alignment, sampling, etc.).

Emptying processes: blind and gasket fitting, degassing and inerting, entering a vessel.
Example of procedures for equipment shutdown and start-up.
Safe behavior.

- Field hazard recognition and prevention means plotting.
- Case studies - Group work. Lessons learned.

ASSESSMENT (DURATION INCLUDED IN THE PREVIOUS CHAPTERS)

Continuous assessment: written tests and oral presentations.

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Training - Geological Field Trip for Drillers

FTFP-EN-P | Face-to-face only | 5 days

This course provides a practical understanding of petroleum systems, useful for integrating geological constraints and rock properties in drilling strategies which ultimately improve drilling models and reduce risk

Level

Awareness

Public

Non-geologists and drilling professionals with no experience in petroleum geology

Objectives

Attendees will be able to implement the following skills:

- review main components of a petroleum system, most common facies rocks and their physical properties
- grasp the scope and fundamentals of the petroleum trilogy
- analyze deformations and constraints, identify potential traps
- deduce implications for drilling campaigns
- understand the importance of reservoir engineering

Pedagogical & technical resources

Training includes classroom course with theoretical exercises and field trip observations in the Lacq gas province (Aspe valley - Pau, South-West of France) and on the Basque coast (Saint-Jean-de-Luz, Biarritz, Bidart - South-West of France)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

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Responsable

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Program

INTRODUCTION TO PETROLEUM GEOLOGY — 2.5 days

Basin and sedimentary rocks - Petroleum system:

- Sedimentary basin - Definitions, structure and terminology.
- Sedimentary rocks - Description and main facies - Comparison clastic versus carbonates - Sedimentary process.

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- Petroleum system - Source rock, reservoir rock and seal rock - Trapping and migration process.
- Reservoir engineering: seismic, modeling, accumulations and reserves, effluent behavior, enhanced recovery (EOR), introduction to non-conventional resources and their extraction techniques.
- Exercises: interpretation of geological cross section; identification of the petroleum components, petroleum system building; identification of potential prospects and implementation of exploration wells; analysis of limitations and drilling constraints.

FIELD TRIP IN THE PYRENEAN LACQ FIELD (ACTIVE MARGIN BASIN) 2.5 days

Presentation of the Lacq Basin. Relations with the Pyrenean structure:

- Structural overview of the Pyrenean chain. Geomorphology and structural context.
- Lacq basin: a petroleum system in the Jurassic, lower cretaceous carbonate domain. Source, reservoir and seal rocks.
- Structure of the reservoir, trapping and potential hydrocarbon migration.

Sedimentary study of the upper cretaceous clastic formation:

- The turbidites of St-Jean-de-Luz.
- Detail of the sedimentary complex. Observation of the clastic deposits. Analysis of the deposit unit in a turbidite system observation and relationship with carbonate series of the Lacq field.
- Analysis of the turbidites structure in St Jean de Luz. Syn and post sedimentary structures - Observation of “chair folding”. Dissymmetry of the folding. Notions of pressure/stretching and under compacted zones.
- Comparison with turbidities facies of Gan (South of Pau) - Notion of lateral facies variation.

Synthesis and conclusions:

- Structural context of the Lacq gas field: an example of active margin basin in foothills domain.
- Elements of the petroleum system of the Lacq gas field: an example of petroleum system in carbonate domain.
- The upper cretaceous turbidite system: interest of this facies analysis to understand the Pyrenean structure.
- Field observation of the turbidite series structure: interest and consequences for drilling purpose.

Sessions

Pau - From 01/18/2027 to 01/22/2027 **4420 €/HT**

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Training - Furnaces: Safe Operation and Optimization

FURNSOO-EN-P | **Face-to-face only** | **4 days**

This course provides in-depth knowledge of furnace operation in the petroleum and petrochemical industries. The course covers also the safety and reliability constraints

Level

Skilled

Public

- Operators, panel operators, supervisors and plant managers of refining, chemical and petrochemical plants, involved in furnace operation
- Engineers and supervisors concerned with safety, optimization and operating issues of furnaces

Objectives

Attendees will be able to implement the following skills:

- Describe the phenomena involved in industrial combustion and establish the conditions necessary for efficient combustion
- Identify the optimization parameters of a furnace and explain the operation of the main control loops
- List the main phases of a start-up procedure

Pedagogical & technical resources

- Use of a dynamic simulator to understand the impact of operating conditions on thermal performance and furnace operation
- Use of case studies and exercises based on industrial situations
- Special emphasis on safety issues and abnormal situations that can lead to accidents
- The course content can be tailored to different types of furnaces and includes specificities linked to some processing units such as the steam reformer or steamcracker

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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FURNACE CONSTRUCTION & OPERATING CONDITIONS — 0.75 day

Different types of furnace and operating conditions. Scope and limitations for improving furnace efficiency.
Construction of heat exchange areas and refractory materials: tube bundle arrangement, insulation, type of material used and operating limits.

COMBUSTION - BURNERS - DRAFT — 1.25 days

Combustion conditions: liquid and fuel gas characteristics, liquid spray.
Burners: fuel and air supply and mixture. Conventional and low NOx burners operation.
Combustion quality: analysis of the oxygen and the unburned material in the flue gases, control of combustion air flowrate and air/fuel ratio.
Combustion safety: flame detection, control and safety devices.
Air and flue gas circulation: natural draft, forced draft, pressure differential control, automatic safety devices.
Damper or induced draft fan role.
Application:

- Natural and forced draft pressure profile drawing. Review of draft constraints.
- Different types of burners and spraying systems.

HEAT TRANSFER & FURNACE OPERATION — 2 days

Heat transfer to the tube coil: control parameters. Impact of internal or external fouling.
Heat control: process fluid outlet temperature, fuel flowrate control.
Most important furnace temperature and constraints: skin temperature, bridgewall temperature, limits and risk of overcoming.
Application: furnace temperature profile and heat recovery distribution as a function of fuel burned and combustion air excess.
On-stream furnace operations: monitoring of combustion and heating. Modifying operating conditions. Analysis of disturbances. Key points for safe operation.
Start-up and shutdown: preparation, safe ignition procedures, ignition after a short shutdown, normal shutdown, emergency shutdown.
Incidents.
Troubleshooting. Prevention.
Application:

- Case study of furnace accidents.
- Start-up procedure study.

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Training - Gas Cycling: an Integrated Approach

GASCYCL-EN-P | Face-to-face only | 5 days

This course provides participants with an integrated approach of gas cycling, from the reservoir to the surface facilities

Level

Knowledge

Public

Production or petroleum engineers involved in operating or designing Oil & Gas field processing facilities

Objectives

Attendees will be able to implement the following skills:

- List main characteristics of Oil & Gas well effluents
- Identify key field and reservoir parameters, choose a gas cycling strategy
- Evaluate reservoir performances and recovery factor
- Specify quality and flowrate needed for gas re-injection
- Assess key parameters for surface facilities design as needed for gas re-injection

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Methodology illustrated by multiple industrial case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS CYCLING — 0.5 day

Introduction.
The integrated gas cycle: elements, configuration, challenges.
Gas cycling for pressure maintenance.
Gas cycling for miscible gas displacement (EOR): sweeping and soaking, compositional effects.
Dry gas cycling in retrograde condensate reservoirs.

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Cycling non-hydrocarbon gases.
Major issues and constraints: reservoir, wells, flow lines and surface facilities.

WELL EFFLUENT BEHAVIOR — 0.5 day

Different types of well effluent. Main characterization parameters.
Constituents that pose problems for storage and transport.
Gas composition: rich and lean gas, sweet and sour gas.
Gas PVT behavior.
PVT properties of pure components and mixtures.

RESERVOIR FLUID BEHAVIOR & NEEDS FOR GAS CYCLING — 0.5 day

Phase envelop, reservoir and surface PVT issues.
Ternary diagram, first contact miscibility, multiple contact miscibility: condensing drive and vaporizing drive, Minimum Miscibility Pressure (MMP).
Specificities of condensate gas: retrograde region.

RESERVOIR ASPECTS — 0.5 day

Reservoir performance.
Drive mechanisms: gas reservoirs, gas cap, gravity drainage displacement, tertiary gas displacement, miscible gas displacement.
Requirements for gas quality for injection, flowrate, cycling rate and configuration of injection.
Field development: architecture and phasing.

INTRODUCTION TO SURFACE FACILITIES DESIGN — 0.25 day

Gas specifications to conform with gas cycling (dew point, sulfur removal & valorization).
Field processing of gas effluents for gas cycling.

GAS DEHYDRATION & SWEETENING — 0.25 day

Moisture content of natural gas.
Gas dehydration processes.
Gas sweetening, acid gases disposal.

CONDENSATE: RECOVERY, STABILIZATION & MONETIZATION — 0.5 day

Low-temperature separation techniques.
Condensate stabilization.
Monetization routes.

GAS COMPRESSION — 0.25 day

Multistage compression: design criteria.
Gas compression versus field aging: effect on operating parameters, needs for booster station.

COMPRESSORS & DRIVERS — 0.5 day

Compressors technology: choice criteria, effect of gas density evolution.
Compressor drivers.

INJECTION NETWORK — 0.25 day

Network architecture.
Network operations, backpressure management.
Well performance issues.

CASE STUDY: SYNTHESIS - WRAP UP — 1 day

Field monitoring, adaptation of surface facilities to field aging, re-injection rate versus surface production capacities and effect on recovery, re-injection rate versus gas sales and effects on reservoir monitoring.

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This training course is offered under the **Alliance4Training** brand

Training - Operation of Gas Lift Wells

GASLIFT-EN-P | **Face-to-face only** | **3 days**

This course provides a comprehensive knowledge and know-how of gas lift wells operation. To identify and troubleshoot most common operations issues

Level

Skilled

Public

Control room operators and field operators involved in gas lift wells monitoring and operation

Objectives

Attendees will be able to implement the following skills:

- Explain eruptive or assisted well dynamics, and the operating principles of downhole and surface equipment
- Implement and monitor gas lift wells start-up sequence
- Operate and start-up gas lift wells, identify and troubleshoot gas lift wells instabilities

Pedagogical & technical resources

- Very interactive training by industry specialists
- Numerous teamwork exercises on operation and troubleshooting

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HYDROSTATICS & WELL DYNAMICS — 0.75 day

Pressure Gradient. Condition for eruptive well:

- Fundamentals of fluid flow. Pressure drop/skin effect.

Wells activation method, stimulation/activation operating principle:

- Evolution of reservoir parameters.
- Common stimulation methods.
- Comparison and selection of activation methods.

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GAS LIFT OPERATING PRINCIPLE & ASSOCIATED EQUIPMENT — 0.75 day

Gas lift principle:

- Pressure gradient evolution.

Downhole equipment:

- Completion.
- Gas lift valve principle. Different types of valves.

Surface equipment:

- Metrology. Single/multiple wells operation (manual/automatic).

GAS LIFT WELL START-UP METHOD & SEQUENCE — 0.75 day

Sequential start-up of gas lift wells:

- Initial start (first start-up).
- Simple Start (after ESD shutdown).
- Start-up problems.

Gas lift wells start-up method:

- Open tubing start-up sequence.
- Closed tubing start-up sequence.

Troubleshooting:

- Stabilization and tuning difficulties.
- Potential problems and associated solutions.

PROS & CONS OF GAS LIFT — 0.25 day

TEAMWORK EXERCISES - TROUBLESHOOTING OPERATIONS — 0.5 day

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Training - Gas Reservoir Management

GASRMGT-EN-P | Face-to-face only | 5 days

This course provides an extensive and practical knowledge about optimizing gas & gas condensate reservoirs development and management

Level

Knowledge

Public

Reservoir engineers, petroleum engineers, field development engineers and production engineers involved in gas and gas condensate reservoirs development and management

Objectives

Attendees will be able to implement the following skills:

- Describe PVT modeling of gas and gas condensates
- Apply classic methods to estimate gas and gas condensates accumulations and recovery included material balance and decline curves analysis
- Perform basic gas well testing and determine deliverability
- Apply decline curve analysis and rate transient analysis for estimating initial gas in place and ultimate estimates reserves
- Apply basic reservoir management methods for optimizing with gas reservoirs performance and dealing with water influx and condensate banking phenomena

Pedagogical & technical resources

Interactive lectures and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS RESERVOIR FLUID PROPERTIES — 1 day

Gas reservoir fluid properties: dry gas, wet gas and gas condensate:

- PVT modeling of gas and gas condensates.

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- Experimental data for gas and gas condensates.
- PVT sampling procedure.

Condensate banking.

GAS MATERIAL BALANCE — 1 day

Gas reservoirs and wells modeling through material balance methods: dry gas, wet gas, gas condensates.
Estimate of initial gas in place through material balance methods.

GAS WELL TESTING — 1 day

Gas reservoirs fluid flow and well testing - Non Darcy flow.
Gas wells deliverability and AOFP.
Flow after flow tests, drawdown and buildup tests.

GAS RESERVOIR PERFORMANCE FORECAST — 1 day

Decline curve analysis and rate transient analysis:

- Determining IGIP.
- Determining gas reservoir performance and UER forecast.

GAS RESERVOIR MANAGEMENT — 1 day

Optimizing gas reservoir performance:

- Water influx.
- Gas condensates reservoir and condensate banking - Cycling.

Well performance aspects.

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Training - Hydrocarbon Types and Impurities - E-Learning

GCA1-EN-E | **E-Learning** | **1 hour**

This e-learning module provides a technical information on the main types of hydrocarbons and their associated properties These modules are integrated into some of our Blended Learning courses but can also be followed independently For any information please contact us at the following address: contact@ifptraining.com

Level

Skilled

Public

Professionals, in the oil or petrochemical industry, interested in refining, olefins, aromatics, polymers production. Specifically for engineers and technical staff who are beginners in this industry, as well as subcontractors, traders, etc

Objectives

Attendees will be able to implement the following skills:

- Explain the relationship between the typical composition of crude oil (types of hydrocarbons and other compounds present) and the associated characteristics of the final products

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

COMPOSITION OF CRUDE OILS

Typical composition, density, API gravity classification.

HYDROCARBON GROUPS & COMPOSITION OF PETROLEUM PRODUCTS

Carbon and hydrogen valence. Hydrocarbon classification: paraffins, isoparaffins, naphthenes, aromatics and olefins. Hydrocarbon ranges in petroleum products.

IMPURITIES

Main impacts of sulfur, oxygen, nitrogen and metal contaminants in crude oil processing and petroleum products.

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This training course is offered under the **Alliance4Training** brand

Training - Distillation Process - E-Learning

GCA2-EN-E | **E-Learning** | **1 hour**

This e-learning module provides a brief introduction to distillation process These modules are integrated into some of our Blended Learning courses but can also be followed independently For any information please contact us at the following address: contact@ifptraining.com

Level

Skilled

Public

Professionals, in the oil or petrochemical industry, interested in refining, olefins, aromatics, polymers production. Specifically for engineers and technical staff who are beginners in this industry, as well as subcontractors, traders, etc

Objectives

Attendees will be able to implement the following skills:

- Describe the role of the main equipment of a column to be distilled with regard to the principles implemented

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FLASH OF A HYDROCARBON MIXTURE

Pure substance vapor pressure curve. Flash separation.

PRINCIPLES OF CONTINUOUS DISTILLATION

Separation enhancement via a distillation column. External reflux and reboiler duty impacts on separation quality and energy consumption.

INDUSTRIAL FEATURES OF THE DISTILLATION PROCESS

Liquid-vapor contact material: packings and trays.
Distillation column main operating conditions.

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Training - Introduction to Catalysts - E-Learning

GCA3-EN-E | **E-Learning** | **1 hour**

This e-learning module provides a brief introduction to refining & petrochemicals catalysts These modules are integrated into some of our Blended Learning courses but can also be followed independently For any information please contact us at the following address: contact@ifptraining.com

Level

Skilled

Public

Professionals, in the oil or petrochemical industry, interested in refining, olefins, aromatics, polymers production. Specifically for engineers and technical staff who are beginners in this industry, as well as subcontractors, traders, etc

Objectives

Attendees will be able to implement the following skills:

- list the main roles of a catalyst and possible contaminants

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CATALYTIC ACTION

Chemical reactions: reactants, products, activation energy, overall energy balance, effects of the use of a catalyst.
Five elementary steps a catalytic reaction.

INDUSTRIAL APPLICATIONS

Types of catalysis (homogeneous, heterogeneous) and supported catalysts.
Catalyst main properties (activity, selectivity, deactivation or stability, regenerability, reproductibility).
Catalyst contaminants.

CATALYTIC REACTORS EXAMPLES

Radial reactor with a fixed catalytic bed. Axial fixed bed reactor. Dense and sock loading.

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Training - Polymers - E-Learning

GCA4-EN-E | E-Learning | 1 hour

This e-learning module provides a brief introduction to main properties of polymers with a special focus on the most relevant ones in the market: polyethylene and polypropylene These modules are integrated into some of our Blended Learning courses but can also be followed independently For any information please contact us at the following address: contact@ifptraining.com

Level

Skilled

Public

Professionals, in the oil or petrochemical industry, interested in olefins, aromatics, polymers production. Specifically for engineers and technical staff who are beginners in this industry, as well as subcontractors, traders, etc

Objectives

Attendees will be able to implement the following skills:

- Explain the principle of a polymerization reaction

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO POLYMERS

Monomers: the building blocks. Monomers to Polymer transition.
Synthetic polymers types and main features.

POLYETHYLENE

Polyethylene development timeline. LDPE, LLDPE and HDPE main features and applications.
Brief introduction to Polyethylene processes.

POLYPROPYLENE

Polypropylene atatic, isotatic and syndiotactic forms. Polypropylene main features and applications.
Brief introduction to Polypropylene processes.

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Training - Gas chain economics and energy transition

GCEG-EN-P | Face-to-face only | 55 days

The natural gas market, including LNG (liquefied natural gas) in particular, has experienced strong development. This sector is impacted by the energy transition and the development of competing energies The IFP Training Certificate program in gas chain economics in this context of the energy transition provides knowledge and know-how to professionals in key disciplines solicited in upstream to downstream gas marketing development projects. It offers professionals the opportunity to acquire high-level skills in the fields of gas project economics as well as an in-depth understanding of the industrial dynamics observed in this natural gas sector

Level

Knowledge

Public

All key players, engineers, market analysts, project managers, managers, professionally evolving towards a position requiring in-depth knowledge of the economic and contractual issues of the Gas & LNG chain in this context of energy transition.

Objectives

Attendees will be able to implement the following skills:

- Be aware of the components of the global gas scene
- Specify the characteristics of natural gas and detail the natural gas chain
- Be aware of the technical, operational and commercial conditions concerning shipping
- Make investment profitability analysis in the gas sector
- Identify the main clauses of gas and LNG agreements
- Understand the operational responsibilities of the actors from the chain Front-to-Back

Pedagogical & technical resources

- Highly interactive training with industry expert speakers
- Computer-simulated case studies based on gas projects
- Quizzes, videos and application exercises
- Scenario, negotiation role plays

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

MODULE 1: ENERGY ISSUES AND IMPACT ON THE GAS MARKET IN THE 21ST CENTURY — 3 days

Climate commitments.
Energy needs and climate change.
Energy transition and geopolitics.
Oil and gas vs electricity.
Oil and gas company strategies.

MODULE 2: SAVING THE GAS CHAIN AND LNG — 4 days

Natural gas in the global energy balance and the strategies of the main players in the industry.
Natural gas opportunities and emerging trends in the gas and LNG industry.
Main technical, economic and contractual characteristics of the natural gas value chain, from the production well to the final consumer.
Gas and LNG markets and their evolution (price, hedging, etc.).

MODULE 3: NATURAL GAS: TYPES, SPECIFICATIONS & PROCESSING TECHNOLOGIES — 5 days

Fundamentals of natural gas composition, characteristics, production and field processing.
Technical issues and specific constraints of natural gas transport and storage.
Review of the different end-user markets available for natural gas upgrading.
Main economic issues of the natural gas chain.

MODULE 4: LNG: RISKS, TECHNOLOGIES, AND OPERATIONS — 5 days

The LNG chain: liquefaction, transport, storage, regasification.
Specific properties of LNG - cryogenics.
Liquefaction and revaporization processes.
Vessel specifications, operation and operations.
Regasification terminals: storage, loading/unloading, regasification.
Operation of LNG facilities.

MODULE 5: ECONOMICS AND MANAGEMENT OF UPSTREAM GAS — 4 days

Key issues and constraints in contract negotiations (government, national and international companies).
Overview and analysis of the different tax systems and contractual frameworks that exist.
Main contractual and tax clauses of E&P contracts.

MODULE 6: CONTRACTUAL FRAMEWORK FOR THE MARKETING OF GAS AND LNG — 4 days

Main articles of long-term agreements on natural gas and LNG.
Key points of the commercial clauses.
Natural gas pricing and transportation principles.
Techniques for negotiating master sales and purchase contracts.

MODULE 7: PROFITABILITY STUDIES OF INVESTMENTS IN THE GAS INDUSTRY — 5 days

Development of advanced computer models for the economic evaluation of gas projects.
Incorporation of a specific financing plan through the analysis of the return on equity.
Analysis of economic results and conducting sensitivity analyses.
Taking into account risk and uncertainty in the economic evaluation of gas projects.
Government Policies and Support Programs / Investment Incentives and Barriers.

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MODULE 8: UNDERGROUND CARBON CAPTURE AND STORAGE (CCUS) AND ITS ECONOMIC IMPACT ON THE GAS CHAIN — 5 days

CCUS technologies: Where do we stand? Synergies with natural gas?
Integration of a CCUS project upstream of a gas project and development cost.
CCUS price vs carbon credit.
Profitability and financing of carbon capture and storage.
Economic impact of CCUS and carbon credits on the profitability of gas projects.

MODULE 9: INVESTMENT AND PROJECT MANAGEMENT THROUGHOUT OF THE GAS CHAIN — 5 days

Preliminary studies, conceptual studies, EPC phase and project implementation plan.
Local content and sustainable development.
Phases of a gas project. Detailed engineering of an LNG project and associated activities.
Technical contracts. Project organization, governance, interface and communication management.
HSE management, quality and risks. Project management: costs and planning.
Case studies.

MODULE 10: DOWNSTREAM GAS MARKET IN EMERGING COUNTRIES AND CONVERGENCE GAS & ELECTRICITY — 5 days

Modern natural gas markets: segmentation and regulation in emerging countries.
Operation of the downstream natural gas market.
Natural gas trading: physical market and financial market.
The role of LNG in the globalization of transactions.
Gas / Electricity: competition and convergence.

MODULE 11: FOCUS ON NATURAL GAS AND ENERGY TRANSITION — 5 days

Future of fossil fuels: Another important role for natural gas.
Natural gas value chain and carbon neutrality.
Sustainable development for gas and LNG.
Gas and LNG saving vs carbon storage.
Natural gas resource for electricity generation.

FINAL PROJECT — 5 days

End-of-study project on a theme specific to the economics of energy transition.

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Training - Governance of an E&P Company

GCEP-EN-P | Face-to-face only | 5 days

This course provides the most recent elements and reflections on companies governance and key issues specific to the Oil & Gas upstream companies, except for contracts audit which is treated in a separate course (upstream contracts audit)

Level

Skilled

Public

Professionals in charge of implementing internal control and procedures, managers and independent board members wanting to know the best practices, to technical staff called to move to the internal audit of their company

Objectives

Attendees will be able to implement the following skills:

- Obtain a global understanding of the problems attached to company's governance
- Know the most recent solutions developed and implemented in internal control of companies
- Analyze the human and financial resources needed to ensure the financial safety of the company
- Lead or supervise the creation of an internal audit

Pedagogical & technical resources

Discussions on key issues and examples from the news

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GOVERNANCE OF COMPANIES — 1.5 days

Internal control: where and when.
Principles of financial security.
Definition of audit, norms and standards.
Internal control: definition, modalities.
Internal audit, external audit.

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Audit committee, Certified Public Accountants (CPAs) and external auditors.

AUDIT & INTERNAL CONTROL — 2 days

Definition.
Code of conduct and internal audit.
International standards of internal audit.
Internal control and the COSO referential.
Risk definition and management.
Fraud definition, types and prevention.
Introduction to internal audit methods.

OIL & GAS SPECIFIC ISSUES — 0.5 day

FCPA compliance.
New reporting requirements for listed companies.
Reserves, payments to States, emission certificates.

BEST PRACTICES STUDY — 1 day

Errors, creative accounting and aggressive accounting: assessment of the risks.
Institutional answers in the USA and in the European Union.
Company's organization.
Developing an internal culture of financial safety.

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Training - Petroleum Studies in Maintenance

GDMAINT-EN-P | Face-to-face only | 60 days

The set of public courses hereunder leads to an IFP Training graduate certificate diploma of petroleum studies in Maintenance

Level

Expert

Public

Maintenance Engineer, newly recruited or Maintenance Technician moving into management positions related to maintenance activities in the Oil & gas industry

Objectives

Attendees will be able to implement the following skills:

- Explain the role of various processing units in a refinery and describe the main manufacturing schemes encountered in oil refining.
- Read and understand a P&ID, identify the technology used for field instrumentation.
- Describe thermal equipment and explain impact of operating conditions on heaters' performance.
- Explain the operation and operation of centrifugal pumps and technical solutions.
- Explain the operation of centrifugal and axial compressors, steam turbines and expanders.
- List the essential elements for the sizing and choice of a compressor or turbine.
- Know the proven maintenance policies (TPM, RCM, RBM, key performance indicators, preventive maintenance tools...) in order to be able to set goals in terms of company global efficiency.
- Recognize the different forms of deterioration affecting industrial equipment.
- Specify the elements to be considered to prevent corrosion.
- List the design and optimization criteria of a utility production scheme (steam, electricity, water, air) with regard to environmental constraints.
- List the various aspects of project engineering to be applied in real cases.
- Identify risks related to products used on a facility and the recommended preventive measures in view of the importance of the risk.
- Present pre-commissioning, commissioning and start-up activities on a project from the perspective of their programming and management.
- Specify organizational and supervisory elements that make shutdown work effective.

Pedagogical & technical resources

- Detailed course material with a glossary of the main technical terms used in the refining industry.
- Active participation of trainees through interactive games and quizzes to grasp the key points of the course.
- Illustration of process control using dynamic simulators (IndissPlus de CORYS).
- Actual examples and applications from the refining, petrochemical and chemical industry.
- Use of a dynamic simulator (centrifugal compressor + steam turbine).
- Short scenarios of the most frequent and the most serious key equipment failures, proposed by the trainer and analyzed by the group. Participants shall use their technical knowledge, reasoning skills, multidisciplinarity and operational capacities

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- Wide use of samples, videos and pictures to develop practical case studies for pressure equipment such as piping, heat exchanger, reactor, distillation column, boiler, etc.
- Project by team (2 or 3 students): conception of a PID scheme from a PFD.
- Case studies and analysis of incidents and accidents.
- Cases studies on the precommissioning, commissioning and start-up of typical units.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

REFINING PROCESSES & PETROLEUM PRODUCTS	**5 days**
INSTRUMENTATION & PROCESS CONTROL CERTIFICATION	**5 days**
THERMAL EQUIPMENT	**5 days**
CENTRIFUGAL PUMPS & POSITIVE DISPLACEMENT PUMPS	**5 days**
KEY POINTS FOR COMPRESSORS & TURBINES OPERATION & INSPECTION	**5 days**
MAINTENANCE MANAGEMENT & EQUIPMENT AVAILABILITY	**5 days**
DEGRADATION CORROSION & CORROSION PREVENTION	**5 days**
UTILITIES - ENVIRONMENT MANAGEMENT	**5 days**
PIPING & INSTRUMENTATION DIAGRAM - PID (PROJECT)	**5 days**
SAFETY IN PLANT OPERATION	**5 days**
COMMISSIONING & START-UP OF PROCESS UNITS	**5 days**
TURNAROUND MANAGEMENT	**5 days**

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Training - Petroleum Studies Refining and Petrochemicals

GDPETRC-EN-P | Face-to-face only | 60 days

The set of public courses hereunder leads to an IFP Training graduate Certificate of petroleum studies in Refining and Petochemicals

Level

Expert

Public

Process Engineers newly recruited or technicians with high potential and involved in design, operation and optimization of equipment and processes in the refining and petrochemical industry

Objectives

Attendees will be able to implement the following skills:

- Explain the role of various processing units in a refinery and petrochemical complex and describe the main manufacturing schemes encountered.
- Read and understand a P&ID, identify the technology used for field instrumentation.
- Describe thermal equipment and explain impact of operating conditions on heaters' performance.
- Explain the operation and operation of centrifugal pumps and technical solutions.
- Explain the operation of centrifugal and axial compressors, steam turbines and expanders.
- List the essential elements for the sizing and choice of a compressor or turbine.
- List the design and optimization criteria of a utility production scheme (steam, electricity, water, air) with regard to environmental constraints.
- List the various aspects of project engineering to be applied in real cases.
- Identify risks related to products used on a facility and the recommended preventive measures in view of the importance of the risk.
- Present pre-commissioning, commissioning and start-up activities on a project from the perspective of their programming and management.

Pedagogical & technical resources

- Detailed course material with a glossary of the main technical terms used in the refining & petrochemical industry.
- Active participation of trainees through interactive games and quizzes to grasp the key points of the course.
- Illustration of process control using dynamic simulators (IndissPlus de CORYS).
- Actual examples and applications from the refining, petrochemical and chemical industry.
- Use of a dynamic simulator (centrifugal compressor + steam turbine).
- Short scenarios of the most frequent and the most serious key equipment failures, proposed by the trainer and analyzed by the group. Participants shall use their technical knowledge, reasoning skills, multidisciplinarity and operational capacities.
- Project by team (2 or 3 students): conception of a PID scheme from a PFD.
- Case studies and analysis of incidents and accidents.
- Cases studies on the precommissioning, commissioning and start-up of typical units.

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Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

APPLIED THERMODYNAMICS	**5 days**
INSTRUMENTATION & PROCESS CONTROL CERTIFICATION	**5 days**
THERMAL EQUIPMENT	**5 days**
CENTRIFUGAL PUMPS & POSITIVE DISPLACEMENT PUMPS	**5 days**
KEY POINTS FOR COMPRESSORS & TURBINES OPERATION & INSPECTION	**5 days**
LIGHT CUTS PROCESSING	**5 days**
HEAVY CUTS PROCESSING	**5 days**
UTILITIES - ENVIRONMENT MANAGEMENT	**5 days**
PIPING & INSTRUMENTATION DIAGRAM - PID (PROJECT)	**5 days**
SAFETY IN PLANT OPERATION	**5 days**
COMMISSIONING & START-UP OF PROCESS UNITS	**5 days**
PRODUCTION OF BASE CHEMICALS & COMMODITY POLYMERS	**5 days**

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Training - Applied Chemical Engineering to Oil, Gas and Chemical Fields - Module 1

GENCHI1-EN-P | Face-to-face only | 3 days

This course provides a more in-depth knowledge on the operation and operating conditions of the material and processes in refining, petrochemical and heavy chemistry sites as well as a strong foundation in the use of process simulation software

Level

Expert

Public

- Engineers and technicians whose activities are related to the operation of industrial sites: production, maintenance, plant projects, process control, laboratory, engineering, R&D, etc
- Every type of activities is concerned: refining, petrochemistry, heavy chemistry, engineering

Objectives

Attendees will be able to implement the following skills:

- Specify the principles of chemical engineering governing the operation of equipment

Pedagogical & technical resources

- Specific and original documentation covering different topics from an applied angle
- Numerous applications and case studies related to industrial situations
- Data, diagrams, graphs, various correlations presented in one single ring binder for easy reference after the course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: LIQUID-VAPOR EQUILIBRIA, DISTILLATION & PRELIMINARY DESIGN — 3 days

Thermodynamics in liquid-vapor equilibria:

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- Material and energy balances in continuous processes.
- Fluid properties, law of corresponding states, equations of state.
- Liquid-vapor equilibria. Calculation principle.
- Thermodynamic models applicable to hydrocarbon mixtures.
- Non ideal mixtures, water-hydrocarbon mixtures.

Distillation:

- Design principles of distillation columns.
- Operating parameters of industrial distillation columns: material balance, pressure, operation of the liquid-vapor contact material, heat balance, implementation of reboilers and condensers, liquid-vapor traffics, temperature and composition profiles.
- Distillation column control: basic control, sensitive tray, control of calculated variables, advanced control.

MODULE 2: FLUID FLOW & ROTATING EQUIPMENT (GENCHI2-EN-P) 3 days

MODULE 3: HEAT & ENERGY TRANSFER (GENCHI3-EN-P) 4 days

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Training - Applied Chemical Engineering to Oil, Gas and Chemical Fields - Module 2

GENCHI2-EN-P | Face-to-face only | 3 days

This course provides a more in-depth knowledge on the operation and operating conditions of the material and processes in refining, petrochemical and heavy chemistry sites as well as a strong foundation in the use of process simulation software

Level

Expert

Public

- Engineers and technicians whose activities are related to the operation of industrial sites: production, maintenance, plant projects, process control, laboratory, engineering, R&D, etc
- Every type of activities is concerned: refining, petrochemistry, heavy chemistry, engineering

Objectives

Attendees will be able to implement the following skills:

- Specify the principles of chemical engineering governing the operation of equipment

Pedagogical & technical resources

- Specific and original documentation covering different topics from an applied angle
- Numerous applications and case studies related to industrial situations
- Data, diagrams, graphs, various correlations presented in one single ring binder for easy reference after the course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: LIQUID-VAPOR EQUILIBRIA, DISTILLATION & PRELIMINARY DESIGN (GENCHI1-EN-P) — **3 days**

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MODULE 2: FLUID FLOW & ROTATING EQUIPMENT — 3 days

Thermodynamics applied to rotating equipment.
Fluid flow:

- Characteristics of the single-phase liquid and gaseous flows.
- Flow rate measurement with measuring devices.
- Determining pressure drops in sites, influence of the valves.
- Characteristic curve of a circuit, examples of typical circuits.
- Liquid-gas two-phase flow map.

Pumping and compression:

- Functions and elements of the main rotating equipment.
- Operation of the centrifugal pumps and characteristic curves.
- Connections pump-circuit. Adjustment to the operating conditions: changes in the flow rate, the product, temperature, cavitation.
- Gas behavior during compression.
- Operation of reciprocating and centrifugal compressors.
- Adjustment to the operating conditions: change in the efficiency, operating limits.

MODULE 3: HEAT & ENERGY TRANSFER (GENCHI3-EN-P) — 4 days

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Training - Applied Chemical Engineering to Oil, Gas and Chemical Fields - Module 3

GENCHI3-EN-P | Face-to-face only | 4 days

This course provides a more in-depth knowledge on the operation and operating conditions of the material and processes in refining, petrochemical and heavy chemistry sites as well as a strong foundation in the use of process simulation software

Level

Expert

Public

- Engineers and technicians whose activities are related to the operation of industrial sites: production, maintenance, plant projects, process control, laboratory, engineering, R&D, etc
- Every type of activities is concerned: refining, petrochemistry, heavy chemistry, engineering

Objectives

Attendees will be able to implement the following skills:

- Specify the principles of chemical engineering governing the operation of equipment

Pedagogical & technical resources

- Specific and original documentation covering different topics from an applied angle
- Numerous applications and case studies related to industrial situations
- Data, diagrams, graphs, various correlations presented in one single ring binder for easy reference after the course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: LIQUID-VAPOR EQUILIBRIA, DISTILLATION & PRELIMINARY DESIGN (GENCHI1-EN-P) — **3 days**

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MODULE 2: FLUID FLOW & ROTATING EQUIPMENT (GENCHI2-EN-P) 3 days

MODULE 3: HEAT & ENERGY TRANSFER 4 days

Heat transmission:

- Reminders on thermodynamics in heat transfer.
- Conduction and convection: parameters that affect the exchange, means of calculation.
- Radiation: emission, absorption, application to furnaces and boilers, tube skin temperature.

Exchangers - Furnaces and boilers:

- Function, classification and terminology of heat exchangers.
- Performances of the exchangers depending on the fluid circulation mode, evolutions depending on changes in the operating conditions.
- Design principle of the exchangers and introduction to energy efficiency.
- Combustion, energy balance (radiation and convection zone) and efficiency determination of energy recovery in furnaces and boilers. Heat exchanges in the radiation section. Circulation of air and stack fumes.

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Training - Fundamentals of Mechanical Maintenance

GENMAIN-EN-P | **Face-to-face only** | **5 days**

This course aims to master the elements of language and understanding of mechanical systems, in terms of design, characterization, maintenance and repair. This will contribute to the maintenance follow-up, but also to the optimized operation of the static and dynamic mechanical systems (rotating machinery)

Level

Knowledge

Public

All technicians from the Oil & Gas industry who work in connection with equipment and mechanical systems (operation, maintenance) and who do not know the fundamentals of design of these systems (or who wish to deepen their knowledge). Jobs mainly concerned: mechanicals, mechanical assistants, mechanical supervisors

Objectives

Attendees will be able to implement the following skills:

- Know the basics of technical drawing, characterize a part, a mechanical assembly
- Identify the different mechanical construction materials
- Know the fundamentals of mechanical system design, the main assemblies (bearing assemblies)
- Know the main power transmission elements (gears, joints...), wisely use the metrology devices used in workshop
- Describe the mechanical strength, chemical resistance and thermal resistance

Pedagogical & technical resources

- Very interactive training given by highly experienced trainers
- Gradual mechanical approach, from the dimensioning of a simple mechanical part to the design basis of a dynamic system such as a rotating machine

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNICAL REPRESENTATION OF PARTS & SIMPLE MECHANICAL SYSTEMS — 2 days

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Technical drawing agreement: 2D and isometric views, projections, section and cut-away views, perspectives, technical vocabulary.
Dimensioning of parts and mechanical systems, ISO tolerancies and main adjustments.
Dimensional tolerancies and clearance.
Geometric tolerancies and surface condition characterization.
Presentation of the tools in a metrology shop, performances and rules of use.
Practical exercises:

- Dimensioning and full geometric control of a pump shaft.
- Understanding of a simple machine cut-away view.
- Representation of a machine element in 2D projection and perspectives.

ELEMENTS OF CONSTRUCTION — 1 day

Materials used in the Oil & Gas industry: identification of the metals, alloys, plastics and composites, operating and maintenance rules.
Expansion and effects on the assemblies.
Manufacturing process of metallic parts, molding, forging.
Frequent screwed, bolted, welded and stuck constructions.
Characterization of threads and bores, petroleum thread pitch.
Removable power transmission: keys, gears, hinged connections (joint...), cone interface.
Non-removable power transmission: shrink fitting.
Bearings: characterization, types, identification, assembly rules.
Seals of static systems (between flanges) and dynamic systems (mechanical seals on bearing boxes), analysis and selection of the materials.
Pipe, valves and main line accessories: identification, operation and maintenance rules.
Practical exercises: selection, identification and assembly of the ball bearings in a simple process pump.

ELEMENTS OF MAINTENANCE — 1 day

Tightening: importance of torque, order, techniques.
Alignment: understanding the operation, controlling the mating of piping.
Lubrication: properties and characterization of common oil and greases, lubricating systems.
Controlling the condition of parts at disassembly: corrosion, defaults, mating, wear, rupture.
Controlling the clearances at disassembly.
Practical exercise: mechanical completion of a pump on site (control and implementation).

ELEMENTS OF REPAIR — 1 day

Surface treatments and coatings.
Overlay welding and reconstitution.
Machining.
Casing repair with staples.
Expertise controlling: dye penetrant testing, metrology, ultrasonic, hardness testing.
Test and requalification: balancing, test, control of performances.

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Training - Petroleum Systems: Hydrocarbons from Source Rock to Reservoirs

GEOCHIM-EN-P | Face-to-face only | 5 days

To gain a greater understanding of important geological processes in a petroleum basin, this course provides an understanding of various geochemical techniques, leading to sedimentary basins' hydrocarbon potential evaluation and to the identification of hydrocarbon migration pathways

Level

Knowledge

Public

Geologists, geophysicists or geochemists involved in petroleum potential evaluation or in reservoir management

Objectives

Attendees will be able to implement the following skills:

- Review the petroleum system concept and associated processes
- Get practical insights of basic analysis of geochemical data and reports
- Assess and analyze geochemical data in order to evaluate source rock potential and maturity

Pedagogical & technical resources

Lectures and hands-on activities: several exercises and case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO PETROLEUM SYSTEMS — 1 day

SOURCE ROCKS: FORMATION & DISTRIBUTION — 1 day

Formation of source rocks:

- Type of organic matter.
- Distribution of source rocks in space & time.

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FROM SOURCE ROCK TO ACCUMULATION — 1 day

Formation of Oil & Gas:

- Methods for evaluation of the source rocks.
- Modeling of hydrocarbon formation.
- Migration.

MOLECULAR FOSSILS, BIOMARKERS — 1 day

Concept of “biomarker”:

- Analytical methods.
- Markers of origin and environments.
- Oil/source rock correlation.
- Maturity parameters.
- Oil spill survey.

ALTERATION IN RESERVOIRS — 0.5 day

WORKSHOP ON A PETROLEUM SYSTEM — 0.5 day

SUMMARY, SYNTHESIS & WRAP-UP

The petroleum system of South Atlantic Ocean.

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Training - Geomechanics for geoscientists

GEOMEC-EN-P | Face-to-face only | 5 days

This training aims to equip professionals with essential geomechanics knowledge to ensure wellbore stability, reservoir integrity, and safe production. The course covers fundamentals, well and reservoir applications, and the impact of production on completions, enabling participants to apply geomechanical principles in drilling, injection, and field development decisions

Level

Knowledge

Public

Geoscientists and professionals (reservoir engineers, geologists, geophysicists) with no or limited experience in geomechanics

Objectives

Attendees will be able to implement the following skills:

- Understand the fundamentals of geomechanics, including stress, strain, rock failure, and poro-elastic behavior.
- Describe geomechanical principles to wellbore stability, drilling operations, and reservoir integrity during production and injection.
- Evaluate the impact of geomechanical changes on well completion and field development decisions.

Pedagogical & technical resources

Interactive presentations combined with hands-on exercises, guided by the instructor for practical application.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Knowledge in geosciences.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO GEOMECHANICS APPLICATION IN O&G INDUSTRY — 0.25 day

FUNDAMENTALS OF GEMECHANICS — 2 days

Stresses.
Strains and Elasticity.

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Rock Failure.
Poro-Elasticity.
Poro-Thermo-Elasticity.
Lab Testing.

WELL GEOMECHANICS — 1 day

Stress around wellbore.
Shear failure around wellbore function of mud weight.
Wellbore stability while drilling.
Fracturing pressure.
1DMEM.

RESERVOIR GEOMECHANICS — 1 day

Definition.
Stress path in and around reservoirs.
Subsidence.
Seal and reservoir integrity during injection.

IMPACT OF PRODUCTION ON WELL COMPLETION — 0.5 day

Infill drilling.
Solids production.

SYNTHESIS & WRAP-UP — 0.25 day

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Training - Geomechanics for Drillers

GEOM-EN-P | Face-to-face only | 3 days

This training course aims to ensure the understanding of geomechanics-related drilling problems such as wellbore stability and fluid losses, and to be aware of the techniques used in the petroleum industry to mitigate these phenomena

Level

Knowledge

Public

Engineers and supervisors involved in drilling operations

Objectives

Attendees will be able to implement the following skills:

- acquire the basic geomechanical knowledge useful for drilling operations
- diagnose the mechanisms of wellbore instability and fluid losses including already producing fields
- identify the drilling-related geomechanical parameters as well as the means to measure or assess them from well data and laboratory measurements

Pedagogical & technical resources

Application exercises adapted to drilling situations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO GEOMECHANICS IN THE PETROLEUM INDUSTRY — 1.5 hours

Review of all the applications of geomechanics in the reservoir and drilling fields illustrated with real cases.

THEORETICAL BASES USEFUL FOR DRILLING APPLICATIONS — 12 hours

Stresses, deformations, elasticity.
Connection between stress, pressure and temperature.
Rock tensile failure.
Rock shearing failure.

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Laboratory measurements of tensile and rupture properties.
Geomechanical model of wells (formation pressure, stresses and mechanical properties) and calibration from laboratory measurements and data and well tests.
Different types of pressure tests in drilling, in particular the leak-off test.

STRESSES & RUPTURE MECHANISMS AROUND THE WELL — 12 hours

Radial, axial and tangential stresses.
Shearing failure conditions and calculation of the minimum mud weight.
Conditions of tensile failure and fracture propagation and calculation of the maximum mud weight.
Impact of the well path.
Impact of reservoir production of infill drilling in already producing reservoirs.

APPLICATION — 4.5 hours

Exercise based on one or several real cases gathering the major issues of reservoir geomechanics.
Knowledge assessment.

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Training - Geological Modeling Workshop for Integrated Reservoir Studies

GEOMOD-EN-P | Face-to-face only | 5 days

This course provides a highly practical introduction to the reservoir characterization and modeling workflow, with a full week dedicated primarily to hands-on software discovery and guided exercises using a case study. The workshop emphasis learning by doing — applying key concepts directly in Petrel™ — to build a static geological model

Level

Awareness

Public

Geoscientists and reservoir engineers involved in multidisciplinary teams, willing to widen their knowledge in reservoir modeling

Objectives

Attendees will be able to implement the following skills:

- Provide a clear understanding of techniques and challenges related to geological modeling.
- Build a reliable static model.
- Compute volumes and assess uncertainties.

Pedagogical & technical resources

The course focuses on practical, step by step work in Petrel™, where participants learn to build a 3D geological model through guided exercises on a case study.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION AND SOFTWARE DISCOVERY — 0.5 day

Principles of 3D modeling.
Working with scale.
Overview of the geomodeling workflow.
Introduction to the Petrel™ interface

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SRUCTURAL MODELING — 1 day

Structural modeling concepts and gridding techniques.
Building the fault network.
Defining the structural grid:

- Pillar gridding.
- Volume based modeling.

Modeling horizons.

PROPERTY MODELING: DATA PREPARATION AND ANALYSIS — 0.5 day

Checking data distribution.
Blocking well data to the grid.
Creating VPCs and trend resources.
Building variogram models.

PROPERTY MODELING: DETERMINISTIC AND STOCHASTIC METHODS — 1 day

Review of deterministic methods.
Comparing kriging options.
Removing sampling effects.
Simulation vs estimation.

PROPERTY MODELING: DISCRETE AND CONTINUOUS PROPERTY MODELING — 1 day

Facies modeling.
Fault seal analysis.
Petrophysical property modeling.

VOLUMETRICS & UPSCALING — 0.5 day

Volume calculation.
Upscaling to the reservoir simulation grid.

UNCERTAINTY ANALYSIS — 0.5 day

Conducting uncertainty analysis.

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Training - Petroleum Geophysics

GEOPHY-EN-P | Face-to-face only | 10 days

This course provides a comprehensive, practical understanding of most techniques used in petroleum geophysics. It aims to focus on seismic techniques applied to investigate both reservoir structure and petrophysical characteristics

Level

Awareness

Public

E&P professionals with no or limited experience in petroleum geophysics

Objectives

Attendees will be able to implement the following skills:

- Select the appropriate geophysical method to be used during various phases of petroleum Exploration & Production
- Gain an insight into seismic reflection and methodology: acquisition, processing and interpretation
- Acquire the fundamental principles of borehole seismic and reservoir geophysics

Pedagogical & technical resources

- Interactive presentations, exercises, document analysis and videos
- 2 workshops on PC, using seismic processing and interpretation software tools
- Software used during workshops: with courtesy of Schlumberger

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO PETROLEUM GEOPHYSICS — 0.25 day

SEISMIC WAVE PROPAGATION & SIGNAL PROCESSING — 0.75 day

Seismic waves, rock velocities and densities, Snell-Descartes law.
Reflection coefficients, acoustic impedance.

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Seismic reflection principle. Seismic shot gathers.
Seismic signal vs. Seismic noises. Time domain vs. Frequency domain.
Time and space sampling.

SEISMIC ACQUISITION — 2.5 days

Geodesy. Projections. Topographic surveying.
2D and 3D seismic, land, marine, sea bottom seismic.
Seismic sources (explosive, vibroseis, airguns...).
Seismic receivers (geophones, MEMS, hydrophones...).
Streamers, OBC, nodes, shallow water, transition zone...

SEISMIC PROCESSING & IMAGING — 2.5 days

Seismic processing workflows, post-stack versus pre-stack.
Enhance signal versus noise.
CMP/Bin, static corrections, dynamic corrections, velocity analysis.
Stack, post-stack migrations, pre-stack migrations (PSTM - PSDM).
Workshop: 2D Seismic Processing.

BOREHOLE SEISMIC — 0.75 day

Theory and principles, synthetic seismogram and well-to-seismic tying.
Vertical Seismic Profile (VSP), Offset Seismic Profile (OSP), walkaway.
Seismic While Drilling (SWD).
Examples and applications.

SEISMIC INTERPRETATION: THEORY & PRACTICE — 2 days

Principles and methodology, seismic interpretation pitfalls.
2D seismic interpretation practice (on paper).
Workshop: 3D Seismic Interpretation.

SEISMIC FOR RESERVOIR ANALYSIS — 1 day

Seismic amplitude analysis, Direct Hydrocarbon Indicators (DHI), seismic attribute analysis.
HR - HQ - HD - Broadband seismic, 4D Seismic.
Multi-component seismic, P waves versus S waves.
AVO-AVA processing and analysis, seismic inversion.

GRAVIMETRY, MAGNETOMETRY & ELECTRO-MAGNETOMETRY — 0.25 day

Gravimetry: theory and principles.
Magnetometry: theory and principles.
Electro-magnetometry: theory and principles.

SUMMARY, SYNTHESIS & WRAP-UP

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Training - Geosteering

GEOST-EN-D | Distance only | 3 days

This course provides unique opportunity to independently support the geosteering of horizontal wells in the conditions of real-time drilling, using an interactive simulator

Level

Knowledge

Public

Geologists, reservoir engineers, drilling coordinators and supervisors, petrophysicists and geosteerers

Objectives

Attendees will be able to implement the following skills:

- gain knowledge of the fundamentals of telemetry, measurements and logging while drilling and directional drilling technologies
- become aware of the criteria for selecting the minimum required logging data set before a geo-steering job, and get acquainted with errors and uncertainties in the drilling of horizontal wells, related both to geol-ogy and to the limitations of telemetry and logging tools, and the methods of calculating the well trajectory
- master the modern geosteering methods and become familiar with the basics of interpreting azimuthal logs

Pedagogical & technical resources

- Geosteering requires practice, and this is inevitably associated with making mistakes and wrong decisions. The price of making a wrong decision on a real well can vary from a few hours of non-productive time to a million-dollar sidetrack or a million barrels of oil that can never be extracted. These factors make learning on a real horizontal well an extremely expensive training ground
- Participants will master the necessary knowledge to build a preliminary simulation and develop a strategy for drilling a horizontal well
- Using a unique interactive simulator, participants will independently follow the drilling of at least three horizontal wells, while learning how to independently make timely and technically correct trajectory corrections

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

BASICS OF TELEMETRY, MEASUREMENT WHILE DRILLING (MWD) & DIRECTIONAL DRILLING TECHNOLOGIES — 0.25 day

Drilling technology with motor and RSS.
Logging and Measurements While Drilling (LWD/MWD).
Telemetry and surveys.
Errors and uncertainties while drilling.

GEOSTEERING USING NON-AZIMUTHAL DATA (THEORY) — 0.25 day

Method of matching synthetic curves with actual LWD.
Benefits and limitations of synthetic curves method.

PRACTICUM - PREPARATION OF PRE-JOB GEOSTEERING MODEL; GEOSTEERING OF WELL #1 IN REAL TIME — 0.5 day

Loading and analysis of initial data, choosing drilling strategies, risk analysis.
Geosteering of the training well #1 on the geosteering simulator in real time.
Making geosteering recommendations based on matching with trajectory adjustments.
Working with WITS and WITSML protocols.
Updating the 3D structural geological model based on geosteering results.
Presentation of the final geosteering model.

GEOSTEERING USING AZIMUTHAL DATA (THEORY)

Application of azimuthal data.
Application of borehole images.
"Zones of exclusion" and the error of the dips picked on the images.

PRACTICE - GEOSTEERING OF WELL #2 USING AZIMUTHAL DATA — 0.5 day

Geosteering of well #2 on the geosteering simulator.
Interpretation of the borehole images in real time.
Uncertainty analysis using azimuthal data.
Presentation of the final geosteering model.

GEOSTEERING WITH DISTANCE TO BOUNDARY TECHNOLOGIES (THEORY) — 0.5 day

Measurement principles of the distance to boundary technologies.
Ultra-deep reservoir mapping technologies.
Resistivity inversion in geosteering.

PRACTICE - GEOSTEERING OF WELL #3 — 0.5 day

Geosteering of well #3 in the geosteering simulator in a complex reservoir.

GEOSTEERING "DEBRIEFING" — 0.5 day

The major mistakes in geosteering.
Geosteering tips and tricks.

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Training - Maintenance Management

GESMAIN-EN-P | Face-to-face only | 5 days

This certifying course aims to bring elements related to the implementation of a modern and adapted maintenance policy (such as the risk-based maintenance policy), to define a continuous improvement of reliability, to consider failure direct and indirect costs, to be able to manage maintenance contracts as well as unit shutdowns or turnarounds

Level

Skilled

Public

Maintenance engineers and managers from process industries, as well as production managers concerned by operation costs and equipment management

Objectives

Attendees will be able to implement the following skills:

- Know the proven maintenance policies (TPM, RCM, RBM, key performance indicators, preventive maintenance tools...) in order to be able to set goals in terms of company global efficiency
- Implement reliability measurement, analysis and improvement techniques (reliability indicators, assessment matrix, failure tree, FMECA, Pareto, Weilbull...)
- Know the necessary elements to define a subcontracting policy as well as to efficiently manage shutdowns
- Through various unexpected group exercises, to remind that multidisciplinary and reactivity are part of maintenance managers' jobs

Pedagogical & technical resources

- Applications and case studies illustrating the techniques studied
- Active pedagogy based on participants' experiences
- Short scenarios of the most frequent and the most serious key equipment failures, proposed by the trainer and analyzed by the group. Participants shall use their technical knowledge, reasoning skills, multidisciplinarity and operational capacities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

MAINTENANCE POLICY & OBJECTIVES — 0.5 day

Integration of the maintenance policy to the plant policy. Financial, technical and workforce objectives.
Current methods and trends: criticality analysis, TPM, RCM, RBM, maintenance program optimization based on criticalities (redundancy, utilization rate, impact on production, age...), risk analysis, local conditions.
Different types of maintenance and respective importance: planned preventive, condition-based, predictive, corrective.
Importance of condition-based and predictive maintenances in modern maintenance policies, and particularly data importance (from SAP, PI, site report, root causes...) for the use of efficient methods (RED, e-monitoring...).
Application of the methods studied: criticality ranking, emergency levels, spare parts management.

RELIABILITY MEASUREMENT & FOLLOW-UP — 1 day

Descriptive statistics: reliability and reliability indicators, equipment performance monitoring in terms of availability, MTBF, MTTR...
Statistical functions and their applications to preventive maintenance. Main models, application to the search for preventive control optimization, equipment redundancy studies, standby equipment management.
Pareto law, identification of bad-actors.

RELIABILITY ANALYSIS & IMPROVEMENT METHODS — 1 day

FMECA (Failure Modes, Effects and their Criticality Analysis). Areas of application, basic techniques, probability assessment, common methodological errors. Action plan.
Failure trees, method principle.
RCM - Overall policy. Interest of the decision logics.
TPM - Total Productive Maintenance (global involvement to maintain the production tool).
Concept of asset integrity management as a SECE (Safety and Environment Critical Element).
Concept of machine learning: failure prediction by accumulation and cross analysis of process and equipment data.

MAINTENANCE COSTS & FAILURE COSTS — 1 day

Overall failure costs versus direct costs (materials, spare parts, repair contractors...) and indirect (shortfall in production or injection, quality defect, reputation...). Notion of cost efficiency: overall effectiveness, adaptation to petroleum industry and practical calculations.
Life Cycle Cost (LCC). Application to the choice of investments; application to the search for optimum equipment life duration.
Spare parts managements. Cost of inventory. Unsuitability of some conventional stock management calculations, cost of risk.
Computerized maintenance management.
System (CMMS) and related processes.

OUTSOURCING & SUBCONTRACTING — 0.5 day

Purpose, condition for efficiency. Why outsourcing? Which abilities to be kept? How to keep control?
Different types of contracts. When to use them? How to combine them?
Concepts of General Maintenance Operation Contract (GMOC), Maintenance and Inspection Engineering Contractor (MIEC).
Comparison between specific maintenance contract (“Specific Maintenance Contract” (SMC), “Original Equipment Manufacturer” (OEM)) and integrated maintenance contract (“Integrated Services Provider” (ISP)).

SHUTDOWN MANAGEMENT — 0.5 day

Detailed preparation. Cost control. Planning. Identification of critical operations.
Work management. Worksite organization. Responsibilities. Decision-making. Safety goals.
Acceptances and commissioning. Quality management and safety. Procedures.
Reports and updates.

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IMPROVEMENT PLANS — 0.5 day

From failure management to equipment management.
Lowering the tolerance threshold to defects and operators' involvement.
Maintenance plans by equipment item and equipment type.
Improvement plans, key performance indicators, dashboards. Maintenance audits.

TROUBLESHOOTING

The trainer regularly proposes short operational scenarios that are analyzed by the group. These are related to practical problems that maintenance managers may face on an Oil & Gas site (pump cavitation, compressor pumping, a defect on a control loop or safety system...).
To solve these problems, participants must use their technical knowledge, reasoning skills, multidisciplinarity and operational capability.

Sessions

Pau - From 11/16/2026 to 11/20/2026 — **4360 €/HT**

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Training - Geographic Information Systems

GIS-EN-D | Distance only | 5 days

Geographic information systems are used in multiple processes today. The 5 days in Geographic Information Systems training aims at providing a complete spectrum of GIS potential over multiple disciplines dealing with spatial data

Level

Awareness

Public

Graduate from all technical disciplines

Objectives

Attendees will be able to implement the following skills:

- Understand the types of data that GIS supports and how to manipulate them
- Perform spatial analysis
- Create a decision-making model
- Integrate spatial and non-spatial data and integrate, manage and analyze data to produce information for decision-making

Pedagogical & technical resources

- Participative lecturing
- Case studies
- Teamwork/mini project

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO GIS

Understand the components, goals, and reasons so many professionals use GIS.

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GIS BASICS

Essential GIS concept and tools and data types; principle of cartographic geo-referencing.

COORDINATES SYSTEMS & PROJECTION

Introduction to principal coordinate system and projections.
Understand the datum and coordinates conversion. Maps classification.

GEOREFERENCING

Theory and practice of georeferencing. Error estimation and maps re-projection.

VECTOR & RASTER MODEL

Definition of raster and vector model. Concept of pixel, resolution and grid model. Definition of point, polyline, polygon. Shapefile model, table of attributes, field definition, records and entities.

DATA EDITING

Shapefile creation, graphic and alphanumeric editing.

GEOPROCESSING OPERATORS

Operators for extraction, selection, proximity and statistics. Data overlaying, intersection and buffering.

NUMERIC CARTOGRAPHY

Digitalization and standardization of cartography. Topographic databases and their characteristics.

GEODATABASE MODEL

Relational and object oriented geodatabase. Normalizations rules, database creation and maintenance.

SQL LANGUAGE

Presentation of SQL language for database interrogation. Usage of SQL syntax to extract data from a database. Definition of logical (AND, OR, NOT, XOR...) and mathematical operators.

TOPOLOGIES

Definition of topologies, relations among points, lines and polygons. Topological rules and their utilization.

RELATIONS, JOIN & SPATIAL JOIN

Creation of join and spatial join among shapefiles and tables. Rules definition and implementation.

RASTER ALGEBRA

Operations among raster data. Zonal and local operations.

SPATIAL DATA ANALYSIS

Performing data analysis on spatial data, criteria, potential and future development. Selecting features; interactive selection; select by attributes; select by location; using the right tool of selection.

DECISION MODEL CREATION

Creation of decisional models, validation and standardization.

GIS PROJECT CREATION

Consolidate all the knowledge with the creation of a complete GIS project.

LAYOUTS PRINTING & REPORTING

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Creation of printing layouts and automatic reporting.

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Training - Artificial Lift: Gas Lift

GLIFT-EN-P | Face-to-face only | 5 days

This course provides a comprehensive, practical knowledge of gas lift concepts, operations, equipment and potential problems

Level
Skilled

Public
E&P professionals involved in operating wells using gas lift

Objectives
Attendees will be able to implement the following skills:
- explain eruptive and assisted well dynamics
- describe downhole and surface equipment of gas lift wells
- implement and monitor gas lift wells start-up sequence
- identify and troubleshoot gas lift wells instabilities

Pedagogical & technical resources
- Practical exercises to grasp physical phenomena
- Numerous animations and videos

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FLOWING GRADIENTS - TUBING PERFORMANCE CURVES — 1 day

Well representation and nodal analysis.
Inflow: Productivity Index (PI) and Inflow Performance Relationship (IPR) techniques.
Outflow: vertical flowing pressure gradient curves in diphasic flow and Tubing Performance Curve (TPC).

INTRODUCING GAS LIFT SYSTEMS — 1 day

Principle and active parameters.

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Characteristics and advantages.
Operating parameters determination: gas injection depth, pressure and rate.
Determination of the absolute maximum flow rate versus GLR (Gas-Liquid Ratio). Optimization with time.

GAS LIFT DOWN HOLE EQUIPMENT — 0.5 day

Valve mechanics and characteristics.
IPO/Casing-operated gas lift valves.
PPO/Tubing-operated gas lift valves.
Conventional and Side Pocket Mandrel (SPM).
Miscellaneous valves and equipment.

CONTINUOUS GAS LIFT DOWN HOLE EQUIPMENT DESIGN — 1 day

Side pocket mandrel spacing and valve selection.
Manual (graphical) design.
Standard completion designs and other possibilities (dual completion, macaroni/coiled tubing).

CONTINUOUS GAS LIFT OPERATION — 1 day

Well surface equipment.
Unloading procedure.
Operating recommendations.
Surveillance and troubleshooting.

INTRODUCTION TO PROSPER™ — 0.25 day

Overview of well performance software tool and methods.
PROSPER™ methodology for gas lift design and troubleshooting, manual application.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Geopolitics of Oil and Gas

GPH-EN-P | Face-to-face only | 2 days

This course aims at providing an understanding of resource-based power dynamics, economic and political interdependencies. It tackles both regional and global historical and contemporary conflicts. It also provides multidisciplinary insights on geopolitical crises, critical perspectives on oil & gas policies, and its implications on energy transition Participants will get a complete overview to understand how oil & gas shape global political and economic landscapes, i.e. the interplay between resource availability, geopolitical power dynamics, economic development, and environmental challenges. This course develops analytical skills for the participants to critically assess and challenge policies and strategies, related to the role of energy in shaping the global order

Level

Knowledge

Public

Decision-makers from the oil and gas sector, executives (banking, insurance, consulting), public administration staff (foreign affairs, energy, environment, industry, finance), journalists, PhD and postgraduate students

Objectives

Attendees will be able to implement the following skills:

- understand the oil & gas influence on global political, economic, and environmental systems: international relations, national security, foreign policy decisions, environmental and transition impacts
- understand the geopolitical implications of resource scarcity, energy dependency and energy dominance

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO THE GEOPOLITICS OF OIL & GAS 0.25 DAY

Definition and scope of geopolitics and energy geopolitics.
Historical importance of oil and gas in global politics: oil crises (1973 and the Kippur war, 1979 and Khomeini's Islamic revolution in Iran, etc.), energy embargos (1973), the Arab lobby in the U.S.
Overview of global energy systems.

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GLOBAL DISTRIBUTION OF OIL & GAS RESOURCES 0.25 DAY

Major oil and gas reserves worldwide.
Role of "petro-states" (e.g., Saudi Arabia, Russia, Venezuela, Qatar, Iran, Iraq, etc.).
Geographic chokepoints and transportation routes (e.g., Strait of Hormuz, Suez Canal).

OIL & GAS MARKETS: ECONOMICS AND POLITICS 0.25 DAY

Supply and demand dynamics in oil and gas markets.
The role of OPEC, non-OPEC producers, and multinational corporations.
Price volatility and its geopolitical implications.

ENERGY SECURITY AND NATIONAL STRATEGIES 0.25 DAY

Energy security challenges for producers and consumers.
Diversification strategies (e.g., LNG, pipelines, renewables).
Energy independence and its political impacts (e.g., U.S. shale revolution).

ENERGY, CONFLICTS, AND RESOURCES WARS 0.25 DAY

The role of oil and gas in driving or exacerbating conflicts (e.g., Middle East wars).
Territorial disputes over energy-rich areas (e.g., Arctic, South China Sea).
Resource nationalism and sanctions (against Iran, Venezuela and Russia).
Iraq War, Russia-Ukraine energy disputes.

ENVIRONMENTAL CHALLENGES AND THE ENERGY TRANSITION 0.25 DAY

The impact of oil and gas extraction on the environment.
Climate change policies and the future of fossil fuels.
The geopolitical implications of the energy transition to renewables.

REGIONAL ENERGY GEOPOLITICS 0.25 DAY

Middle East: OPEC's role and oil-driven politics.
Russia and Eurasia: Pipelines, gas exports, and geopolitical leverage.
The Americas: U.S. shale revolution and Latin American energy politics.
Asia-Pacific: Growing energy demand and regional competition.

FUTURE TRENDS IN ENERGY GEOPOLITICS 0.25 DAY

Technological innovations in energy production (e.g., fracking, hydrogen).
The role of emerging players in energy markets (e.g., African producers).
Geopolitical risks and opportunities in the 21st-century energy landscape.

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Training - Management of Small Projects

GPP-EN-P | Face-to-face only | 5 days

Project Management Process applied to small projects implemented in operating facilities

Level

Knowledge

Public

Supervisors and engineers (process, plant projects, operations) and engineering contractor staff

Objectives

Attendees will be able to implement the following skills:

- Specify the steering elements when conducting studies
- List the planning and control elements to be implemented when running a small project

Pedagogical & technical resources

- Numerous examples from actual Refining/Petrochemical projects
- Case study

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRELIMINARY ENGINEERING — 2.5 days

Specific constraints of plant projects (resources, organization, schedule, management of several simultaneous projects). Stage-gate process: various stages from conceptual design to start-up.
Roles and responsibilities of the project manager. Integrated team. Project initiation, basic engineering.
Reviews of the technical packages with owner. Cost estimating methods, accuracy, contingencies.
Project execution plan (PEP): organization, objectives, priorities, milestones, constraints. Interface management.
SHE design risk identification and assessment. Overview of the main methods (HAZID, HAZOP).
Project planning and scheduling. Long lead items. Critical path. Schedule optimization.

CONTRACTING & DETAIL ENGINEERING — 1 day

Engineering contract types. Advantages and drawbacks. Management of an umbrella contract.

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Detail engineering: regulatory compliance, owner corporate standards, deviations. List of deliverables. Most common technical pitfalls. Control of detail engineering documents.

PROCUREMENT — 0.5 day

Equipment procurement: purchasing, expediting, inspection, transportation. Quality control plan.

CONSTRUCTION - START-UP — 1 day

Construction strategy (use of maintenance or subcontractors). Construction management plan. Subcontractor field supervision and control. Field HSE management. Change management. Mechanical completion, punch-list items, commissioning, acceptance. Closure. Warrantee.

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Training - Gas-To-Liquid Technologies

GTLE-EN-P | Face-to-face only | 2 days

This course provides a technical and economic information regarding GTL processes

Level

Awareness

Public

Managers and engineers interested in the current developments of GTL technologies

Objectives

Attendees will be able to implement the following skills:

- List the main technologies involved in GTL production

Pedagogical & technical resources

- This session is adaptable to distance classroom
- Interactive course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NATURAL GAS MARKETS — 0.5 day

Production and consumption of natural gas in the world.
Main uses of natural gas.
Existing and potential routes for gas: pipelines, LNG, electrical power.
Natural gas reserves, associated gas: potential markets for GTL.

GTL TECHNOLOGIES — 1.25 days

Overview of full GTL production chain: synthesis gas, Fisher-Tropsch reaction, finishing.
Products quality from conventional versus GTL technologies.
Different processes for synthesis gas manufacturing and their reactions, catalysts, process schemes, past uses (methanol, etc.):

- Steam reforming.

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- Partial oxidation (POX).
- Auto-thermal reforming.

Fischer-Tropsch manufacturing processes: reactions, catalysts and process schemes.
Finishing processes for products upgrading, oligomerization and hydrocracking downstream Fischer-Tropsch units: reactions, catalysts and process schemes.

GTL PROJECTS & ISSUES — 0.25 day

Investments, operating costs: CAPEX, OPEX, costs for natural gas.
Marketing advantages, environmental incentives.
Economic advantages/drawbacks of GTL versus LNG.
Strategies of the different actors (producing countries of natural gas, process licensors, Oil & Gas companies, engineering companies).

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Training - Operation of hydrotreatment processes

HDTS-EN-P | **Face-to-face only** | **4 days**

This course provides a better understanding of the operation of hydrotreatment units and helps participants to be better prepared to deal with disturbed situations

Level

Skilled

Public

Shift leaders, panel operators and experienced operators in charge of the operation of hydrotreatment units

Objectives

Attendees will be able to implement the following skills:

- Identify key physico-chemical characteristics of the process
- Describe the process steps & the way to monitor them
- Justify process and operating safety measures

Pedagogical & technical resources

Each case study is covered by handling using a high fidelity simulator, following several steps:

- objective of the case study, action by the trainees: operation/settings, stabilization
- analysis of the evolution of operating parameters up to the final state; mass balance, ratios, performance
- consequences for operation strategies
- The duration and content of the training course can be customized to the needs of the client site and the profile of the participants
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

STUDY OF INITIAL SIMULATED STEADY CASE — 1 day

Main process scheme, operating circuits, main pieces of equipment, control systems.

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Characteristics of the streams, operating conditions.
Significance of the process parameters of the units: mass balances, temperatures, pressures, recycle flow rates, amine washing efficiency, recontacting system.
Profile of important parameters along the unit (pressure, temperatures).
Analytical survey.

OPERATION OF THE UNIT: MAIN OPERATING PARAMETERS & OPTIMIZATION — 2 days

Each operating parameter impact on operation is illustrated thanks to simulator handlings.
Reactor temperatures, pressure drop and H2 partial pressure, recycle rate, quench ratio, recontacting ratio...
Feed composition according to origins of constituents.
Severity of different processes according to feed and products specifications.
Protection of the catalyst along a run.
Give away and how to avoid it.
Optimization of stripping and drying operation.

TROUBLESHOOTING — 1 day

Risks and hazards related to the process.
Safety and ESD system.
Operating deviations:

- Feed or hydrogen composition change.
- Amine washing failure, heater failure.
- Make-up gas or recycle gas compressor failure, feed pump failure.

Start-up procedures: main steps and explanation of the role of each step.

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Training - Heavy Oil Production and Processing

HEAVY-EN-P | Face-to-face only | 5 days

This course aims to acquire a comprehensive knowledge and practical know-how of the production and field processing of heavy crude oil

Level
Skilled

Public
Production, field or process engineers involved in heavy oil production

Objectives
Attendees will be able to implement the following skills:

- Describe heavy oil fundamental properties, main reservoir production mechanisms and the adapted techniques
- Explain the reasons for upgrading heavy crude oils, assess the various problems induced by unwanted compounds
- Master oil and water treatment processes, operations and related operating conditions
- Understand the role of different units in a heavy crude upgrading chain
- Acquire a good understanding of the operation of the units related to extra heavy crude oil processing

Pedagogical & technical resources
Highly interactive training course delivered by industry experts and adapted to participants' experience

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRIVE MECHANISMS — 0.25 day

Primary recovery. Secondary recovery: water flooding, gas injection, solvent displacement using naphtha, DCO, DRU. Classic EOR methods: miscible gas injection, chemical flooding. Thermal EOR methods: Cyclic Steam Stimulation (CSS), Steam-Assisted Gravity Drainage (SAGD), In Situ Combustion (ISC), Toe-to-heel air injection.

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WELL PERFORMANCE — 0.25 day

Needs for artificial lift. Viscosity reduction: dilution/blending, heating, emulsification through the formation of an oil-in-water emulsion, pour point reduction by using Pour Point Depressant (PPD). Forecast production of heavy crudes including behavior of horizontal wells.

COMPLETION ADAPTED TO HEAVY OIL PRODUCTION — 0.25 day

Cold production. Hot production: cyclic steam stimulation, steam assisted gravity drainage.

NEED FOR OIL FIELD PROCESSING - QUALITY REQUIREMENTS — 0.25 day

Quality requirements of crude oils. Needs for upgrading heavy crude oils. Examples of compositions of commercialized crude oils.

CRUDE OIL TREATMENT — 1.5 days

Crude stabilization (gas removal) by Multi Stage Separation (MSS): operating parameters (number of separation stages, pressures, heating and cooling needs...); influence on the quantity and quality (API grade) of the produced oil; foaming problems and main available solutions; associated gas recovery.
Crude dehydration (water removal) and desalting: emulsion problems in heavy crude oil production and impact of well production techniques on surface facilities; asphaltenes management in surface facilities; dehydration processes for heavy crude oils; heavy crude oil desalting.
Acid crude sweetening (H2S removal): principle of stripping, stripping of heavy crude oils.
Diluent recovery unit, diluent recovery assessment and maximum recovery diluent.
Asphaltenes precipitation in storage.

PRODUCTION WATER TREATMENT — 0.25 day

Main treatments. Operating principle and required performances. Comparison of the different available techniques. Selection criteria. Examples of production water treatment block flow diagrams.

INJECTION WATER TREATMENT — 0.25 day

Reasons for water injection. Quality requirements and necessary treatments. Main operating conditions of each treatment and required performances. Examples of injection water treatment block flow diagrams.

UPGRADER PRINCIPLES & OBJECTIVES — 0.25 day

Production, fluidification and transportation of extra heavy crude oils. Different ways to upgrade heavy crude oils. Overview of an upgrader, role and purposes of the different processes.

ATMOSPHERIC & VACUUM DISTILLATION — 0.25 day

Upgrader distillation units: principles of distillation, capacity, process flowsheets. Atmospheric and vacuum distillation unit: operating conditions, material balance, energy consumption and heat recovery. Corrosion and corrosion prevention in atmospheric and vacuum distillation units.

UPGRADER HYDROTREATMENTS TO PROCESS NAPHTHA & DISTILLATE — 0.5 day

Hydrotreatment chemical reactions and hydrogen consumption. Hydrotreatment processes: process flow diagram, operating conditions, products characteristics.

THERMAL CONVERSION UNITS: VISBREAKING & DELAYED COKING — 0.25 day

Heavy cuts thermal conversion processes. Visbreaking. Delayed coking process.

OTHER CONVERSION PROCESSES — 0.25 day

Deasphalting units: vacuum residues structure and properties; deasphalting principles: different deasphalting solvents, overall flow sheet, operating conditions; integration of deasphating units in conversion schemes.

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INTEGRATION OF UPGRADING PROCESS WITH SUBSURFACE & SURFACE PRODUCTION

0.5 day

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Training - Heat Exchangers

HEDES-EN-P

Face-to-face only

4 days

This course provides detailed understanding of heat exchangers technology. It covers also thermal and mechanical calculation methods used to design exchangers and their performance monitoring

Level

Expert

Public

Engineers and staff from the technical and process departments of refining, petrochemical and chemical companies

Objectives

Attendees will be able to implement the following skills:

- List advantages and drawbacks of TEMA Types and associate the most appropriate type with operating conditions and fluids properties
- Describe the heat exchange laws and identify key parameters impacting the exchange coefficients and pressure drops
- Define the required data used in HX design software and analyze the output file
- Elaborate, from a process data sheet, a TEMA specification data sheet used for HX construction

Pedagogical & technical resources

- A case study is organized throughout the training program to select, design and check performances of a single phase shell and tube heat exchanger, from the process data sheet to the TEMA specification data sheet
- Study of reboilers, condensers and air-cooled heat exchangers
- Special emphasis on interaction between mechanical aspects and process requirements in the thermal and hydraulic design of heat exchangers
- Parts of or the whole session customizable to a virtual remote classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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HEAT TRANSFER LAW APPLIED TO HEAT EXCHANGERS — 0.5 day

Heat exchange conditions: convection coefficients, resistance caused by the walls and by fouling.
Overall heat transfer coefficient. Mean heat potential in a heat exchanger as a function of fluid distribution, specific case of phase change. Transferred heat flow rate across an installed surface. Influence of installed area and fouling.
Application:

- Evaluation of exchange area requirements as a function of fluid flow distribution.
- Thermal performance follow-up and prediction.

TEMA STANDARD TUBULAR HEAT EXCHANGERS - TECHNOLOGY & SELECTION CRITERIA — 0.5 day

TEMA standard heat exchangers: nomenclature, different types of shell, floating heads and fixed front head.
Selection criteria, advantages and drawbacks of the different types.
Geometrical characteristics of TEMA heat exchangers and technological constraints.
Technological solutions to improve film coefficient or reduce shell side pressure drops: tubes inserts, type of baffle...
Application: selection of a TEMA type and fluid flow allocation according to a process data sheet.

THERMAL & HYDRAULIC DESIGN - PERFORMANCE FOLLOW-UP — 2.5 days

Heat exchanger design procedure: fluid flow allocation, TEMA type selection, heat exchange area estimate, area organization (tubes diameter and length, tube pattern and pitch), baffle (type, spacing and cut), shell side stream analysis, performance and geometrical hypothesis checking, acceptance criteria, reconsideration of initial design (number of shell in series or in parallel, number of tube passes...).
Vibrations induced by flow in a shell: prediction, severity criteria, influence on design.
Specific case of air coolers: technology, particularities of the design procedure, heat transfer and pressure drop on airside.
Condensation or vaporization performance: two phase flow (patterns and pressure drop), condensation modes, film condensation, characteristics, boiling mechanisms, film boiling and convective boiling coefficient.
Hydrodynamics of thermosiphon reboilers.
Application:

- Thermal and hydraulic design of a single-phase heat exchanger.
- Initial design of condenser and reboiler.

PLATE TYPE HEAT EXCHANGERS — 0.5 day

Main type of plate heat exchangers: advantages and drawbacks. Limitations and application area.
Main design rules and arrangement possibilities (parallel, series...).
Application: heat exchange area to install in case of a perfect counter-current plate type HX.

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Training - HPHT Drilling Design and Operations

HPHT-EN-P | Face-to-face only | 5 days

This course aims to provide a comprehensive knowledge on how to design and execute an HPHT well in an exploration or development context

Level

Expert

Public

Engineers, supervisors, superintendents operators from operators, contractors and service companies who will be involved in geothermal, storage or oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- understand the design concepts related to an HPHT well
- learn about required operational preparedness aspects of HPHT drilling operations
- select the well control equipment & procedures applied to HPHT weels
- assimilate the key aspects for executing successful operations in HPHT drilling

Pedagogical & technical resources

- Presentations
- Exercises
- Application to real cases

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GENERALITIES — 3 hours

Applications, terms and definitions.
PPFG aspects of HPHT reservoirs (effect of depletion, geomechanics).
Well architecture specificities of HPHT wells.

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BASIC DESIGN ENGINEERING — 6 hours

Casing design specific to HPHT (thermal simulations/introduction to limit-state and reliability based design/survival loads).
OCTG choice (material grade, SSC, qualification).
OCTG connector choice (test and qualification).
Well equipment (liner, wellheads, casing hangers...).
Annulus management systems (N2 cushion, burst discs, crushable foams...).
Subsea HPHT specificities (wellhead fatigue, X-Mas tree choice, APB).

ADVANCED HPHT WELL ENGINEERING — 9 hours

Casing wear (modeling, measurement, remedial).
Wellhead growth (modeling and impacts, heat island effect).
Fluids & cement aspects of HT environments.
Kick tolerance modeling (dispersed modeling w/drill bench or equivalent, limitations of single bubble in HPHT).
Hydraulic modeling in HPHT operations.
Logging (current HT limitations on MWD tooling).
Introduction to MPD.
In-field drilling (depletion and stress caging...).

OPERATIONAL PREPARATION — 4.5 hours

Rig inspection program for HPHT operations.
Equipment specific to HPHT (mud coolers, kick assembly, early-kick-detection...).
Hydrates (formation mechanisms, prevention).
HPHT checklists.
HPHT procedures (pit management and discipline, breaking circulation, connections, flow checks, tripping procedures, pump out of hole).
HPHT coring and wireline logging.

OPERATIONAL EXECUTION — 7.5 hours

ECD management.
Wellbore breathing (breathing vs. kick, loss-gain scenarios, supercharging mechanisms, fracture...).
Well control aspects.
(E)LOT/FIT in HPHT.
Mud weight management.
Fingerprinting (dummy) connections, swab & surge, compressibility test, drain back/flow volume...).
Case studies (HPHT train wrecks, database analysis of exploration and development wells).

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Training - HSE Engineer

HSEENG-EN-P | Face-to-face only | 60 days

This course provides an in-depth knowledge of safety and environment issues in Oil & Gas production activities: from design to facilities operation

Level

Knowledge

Public

Engineers (particularly field/project engineers) called on to take the position of HSE or safety engineer

Objectives

Attendees will be able to implement the following skills:

- Describe the overall production chain and explain main techniques and equipment used in the Oil & Gas facilities
- Detail HSE aspects regarding production operations, construction, maintenance works, projects/logistics
- Describe HSE management roles and responsibilities, set-up and implement HSE management system
- Contribute to safety engineering studies, incident analysis and investigation reporting, HSE monitoring

Pedagogical & technical resources

- Highly interactive training by industry specialist lecturers, with numerous teamwork sessions
- Numerous applications, case studies and experience feedback

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DOWNHOLE PRODUCTION — 5 days

Fundamentals of reservoir engineering, drilling, completion and well servicing.

OIL & GAS FIELD PROCESSING — 10 days

Fundamentals of reservoir engineering, drilling, completion and well servicing.
Fundamentals of thermodynamics applied to effluent processing.

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Crude oil treatment.
Production water treatment and injection.
Gas processing and conditioning.
Overview of static equipment. Piping, valves, thermal and storage equipment.
Overview of rotating equipment. Pumps, compressors and gas turbines.
Instrumentation and process control.

HSE MANAGEMENT — 10 days

HSE management system.
Occupational health and safety management.
Human factors and responsibilities - HSE culture and HSE leadership.
HSE management in projects.
HSE management of contractors.
HSE management of logistics.
Undesired events reporting and investigation.
HSE audits.

HSE IN PRODUCTION & MAINTENANCE ACTIVITIES — 10 days

Hazard identification and risk assessment of surface processing operations: hazardous products, flammability, fluid behavior.
Utilities, flares & drains. Safe isolation of plant and equipment (LOTO, degassing-inerting, ventilation...).
Risk assessment of maintenance and construction works.
Permit to work system.
Emergency response. Strategies and crisis management.

SAFETY ENGINEERING — 10 days

Process hazard analysis. HAZID studies, HAZOP studies. Consequence analysis methodology.
Major hazard assessment & quantitative risk assessment.
Safety instrumented systems.
Fire detection and protection systems.

ENVIRONMENTAL MANAGEMENT — 5 days

Environmental management system.
Environmental and social impact assessment. Projects.
Applicable technologies for impact mitigation.
Waste management planning.
Oil spill contingency plan.

ASSET INTEGRITY — 5 days

Introduction to Asset Integrity Management.
Criticality and Risk Assessment Tools. FMECA, FTA.
Inspection and test.
Corrosion.
Maintenance and inspection based on failure risk.
Implementation and challenges.

HSE IN DRILLING & WELL INTERVENTION OPERATIONS — 4 days

Hazard identification and risk assessment of drilling operations.
HSE management of drilling, completion, rig move and well intervention operations.
HSE evaluation of drilling contractors.

FINAL ORAL ASSESSMENT — 1 day

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Training - HSE in Drilling Operations

HSEFOR-EN-P

Face-to-face only

4 days

This 5-days course will be run over 4 days as there are public holidays. The entire program will be given, but the days will be extended

This course provides a thorough understanding of risks associated to drilling operations and to reinforce the HSE culture of the workplace environment

Level

Knowledge

Public

Professionals interested to get deeper knowledge in HSE related to drilling operations for Oil & Gas, geothermal and storage wells (i.e. drilling and completion engineers and technicians, mud engineers, supervisors, drilling contractor personnel)

Objectives

Attendees will be able to implement the following skills:

- Ensure high HSE standard during drilling operations
- Identify specific hazards, their associated risks during drilling operations and to define prevention and mitigation measures to reduce risks
- Identify the certificates necessary to ensure the suitability of equipment and personnel
- Understand and apply typical HSE management practices on site (prevention, protection, emergency planning)

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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GENERAL RISKS ASSOCIATED TO DRILLING OPERATIONS

Introduction to Risk Assessment process. Hazard identification and risk assessment.
Risk of flammability:

- Explosive atmospheres (ATEX): flammable products, explosive limits and flash point.
- Ignition sources: naked flame, auto-ignition temperature, sparks and static electricity...

Risks associated with chemical products/toxic gas (H2S).
Health and hygiene risks. Medical fitness to work certificates.
Electrical risks. Area classification requirements. Certificates.
Personal Protective Equipment (PPE).

RISKS ASSOCIATED WITH RIG EQUIPMENT

Introduction to risks associated to derrick, rig floor, stabbing board, derrick board and crown block. Certificates.
Risk of dropped objects.
Works at height.
Introduction to risks associated to draw works, top drive, travelling block, winches and pipe handling system. Certificates.
HSE management of lifting and rigging operations.

RISKS ASSOCIATED WITH DRILLING FLUIDS PROCESSING & CEMENTING OPERATIONS

Risks associated to mud preparation, mud tanks and mud pumps.
Confined space entry procedure.
Risks associated to cuttings treatment units: shakers, degasser, desander, centrifuge...
Risks associated to cementing units and cementing operations.
HSE management of pressurized equipment.

HSE MANAGEMENT OF WELL CONTROL EQUIPMENT

Scenarios associated to well control and main impacts. Examples of catastrophic events.
Description and action of well control equipment.
Testing requirements: functional and pressure tests.
Inspection and certification of equipment and personnel with responsibilities in well control scenarios.

RISKS ASSOCIATED WITH SUPPORT FACILITIES

Engine rooms, power generation and air compressors.
Risks at workshops: hand tools, compressed gas bottles.
HSE management of storage areas.
Introduction to HSE in logistics: materials and personnel transportation requirements.

SAFETY ENGINEERING APPLICATED TO DRILLING OPERATIONS

General layout of drilling activities: safety distances.
Fire & gas detection systems: certificate and testing requirements.

RISKS IN WELL INTERVENTION OPERATIONS

Introduction to common well intervention equipment. Main risks.
Well control equipment in well intervention.
Risks in perforation and well abandonment.

ORGANIZATIONAL FRAMEWORK

Introduction to HSE management system.
HSE management of contractors:

- HSE evaluation of contractor selection.

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- Objectives and development of HSE Bridging Document: case study.

Emergency response planning:

- Main elements and resources: blow out contingency plan, environmental contingency plan and medevac plan.
- Clinic requirements.

Risks associated to simultaneous operations with production and construction activities.
Management of change procedure.
Undesired event reporting.

ENVIRONMENTAL MANAGEMENT & ENERGETIC TRANSITION OF DRILLING OPERATIONS

Introduction to environmental impacts of drilling operations.
Environmental impact assessment and environmental management plan.
Waste management practices and control for drilling operations.
Well testing environmental impacts.
Decommissioning of offshore Oil & Gas Installations.
Low carbon technologies to reduce flare emissions, eliminate venting, and pinpoint fugitive leaks.
Hybrid-powered rig equipped with battery energy storage system (ESS) to reduce emissions.
Utilization of production associated gas to power gas turbine to reduce the carbon footprint.
Utilization and storage (CCUS) technology to capture carbon dioxide released by industrial sources and, for instance, bury it deep underground.

Sessions

Pau - From 05/18/2027 to 05/21/2027 **3890 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - HSE Management

HSEMGT-EN-P | Face-to-face only | 5 days

This course provides the knowledge required to implement and follow-up a HSE management system, in order to ensure a higher level of safety and more environmentally-friendly business activities

Level

Knowledge

Public

Engineers expected to assume a HSE engineer position, business managers seeking to acquire comprehensive HSE management knowledge

Objectives

Attendees will be able to implement the following skills:

- Suggest a relevant HSE organization in order to fulfil local needs
- Identify and explain the different elements of a general HSE management system based on a risk management approach
- Follow adequately local HSE rules and regulations, and contribute to their improvement
- Contribute to building an HSE culture within their organization, which will allow avoiding incidents and accidents
- Prepare HSE audits and be familiar with continuous improvement processes

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF HSE MANAGEMENT SYSTEM — 0.25 day

Historical approach. Initial development and current standards.
Introduction to integrated management system. Certification.

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Fundamentals of HSE management system.
General structure of HSE management system. Policy and elements.

MANAGEMENT COMMITMENT & LEADERSHIP - HSE CULTURE — 0.5 day

Leadership. HSE leadership characteristics. Roles of safety leaders. Communication and motivation.
Establishment of a HSE culture throughout the organization. Importance of communication.
HSE competence assurance. Training matrix.

RISK MANAGEMENT — 1.5 days

Introduction to risk management. Risk assessment process.
Establishment of risk assessment and control - Concepts, strategies and objectives.
Risk management tools, hazard identification and risk register.
Establishment of a corporate risk matrix.
Environmental and social impact assessment process.
Health and ergonomics management.
Human factors and human error.
Management of change procedure.
Downgraded situations and simultaneous operations.
Safety design and asset integrity assurance - Main concepts.
Identification and management of safety critical elements.

HSE PLANNING & CRISIS MANAGEMENT — 0.75 day

Fundamentals of HSE management in projects.
HSE management of contractors. Contractor selection process.
Structure and elements of HSE plans.
Environmental management plans.
Structure for Emergency Response Planning. Establishment of tiers and development from risk assessment information.
Crisis management organization and management of information and resources during emergencies.

ELEMENTS FOR EXECUTION & CONTROL — 0.5 day

Tools for risk management of onsite activities:

- Job safety analysis.
- Permit to work system.
- Observation and HSE awareness programs.
- Pre-start up review.

Logistics HSE management.

AUDITS & CONTINUOUS IMPROVEMENT — 1.5 days

Strategies for establishment of HSE objectives. Main key performance indicators in the industry.
Undesired events reporting and investigation procedure. Accident investigation workshop.
Environmental and social monitoring.
Public reporting, sustainability reporting.
Audit planning.

Sessions

Pau - From 11/16/2026 to 11/20/2026 — **4360 €/HT**

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This training course is offered under the **Alliance4Training** brand

Training - HSE Superintendent

HSESI-EN-P | **Face-to-face only** | **61 days**

This certifying HSE course provides participants with a greater and deeper knowledge in safety in operations, safety engineering, crisis management, environment, HSE management and leadership. It also develops and consolidates their competencies in field operations while developing their team management and communication capabilities

Level

Skilled

Public

Professionals with a significant experience in Oil & Gas surface production and HSE, called on to hold the position of HSE Superintendent

Objectives

Attendees will be able to implement the following skills:

- Know state-of-the-art Oil & Gas production techniques and equipment technology
- Understand all details of HSE issues linked to production, as well as to construction and maintenance works
- Describe HSE management rules and individual responsibilities
- Contribute to building a HSE culture in their organization
- Participate efficiently to crisis management team
- Use efficient work methods and communication skills
- Carry out projects and actions ensuring the highest standards in safety and respect for the environment

Pedagogical & technical resources

- Numerous applications and illustrations
- Several teamwork sessions
- Practical sessions on firefighting and oil spill response
- Development of soft skills and group management techniques

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

INTRODUCTION — 1 day

Welcome and program overview. Entry test. Units. Dimensions.

DOWNHOLE PRODUCTION - WELL PERFORMANCE - PRODUCTION FUNDAMENTALS — 5 days

Fundamentals of reservoir engineering. Well testing. Fundamentals of drilling, completion and well servicing. Artificial lift (pumping, gas lift...) and well performance. Effluent behavior. Fundamentals of thermodynamics. Specifications. HSE management.

OIL, WATER & GAS PROCESSING — 5 days

Oil processing: required specifications, stabilization, dehydration, desalting. Production and injection water treatment: water quality requirements and associated treatments. Gas processing: required specifications, dehydration, hydrates, consequences and treatments; Natural Gas Liquids recovery.

OFFSHORE DEVELOPMENTS, FLOW ASSURANCE — 2 days

Offshore developments challenges, technology, techniques and production constraints. Fixed and floating production structures. Prevention of deposits in flowlines. Monitoring of multi-phase flows in flowlines.

TERMINAL, FSO & FPSO — 1 day

Overview of oil terminals. FSO & FPSO technologies. Metering of oil quantities.

BEHAVIORAL MANAGEMENT — 5 days

Teamwork management, written and oral communication. Active listening and communication tools. Team cohesion and stress management. Problems analysis and investigation: tools and behaviors. How to better analyze and know oneself.

INSTRUMENTATION & PROCESS CONTROL - ELECTRICITY — 5 days

Instrumentation and process control: functional blocks, symbolization; measurements, sensors, security equipment; control equipment, controllers and control loops; Distributed Control System (DCS): architecture, connections; Safety Instrumented Systems (SIS): HIPS, ESD, EDP, FGS. Electricity: generation (turbines, alternators, monitoring, troubleshooting); distribution (HT-BT networks, stability, cabinets, batteries, isolation, protections).

ROTATING MACHINERY — 5 days

Pumps: centrifugal pumps (types, technology, auxiliaries, performances); volumetric pumps. Compressors: centrifugal compressors: rotor, stator, bearings, shafts, seals balance; reciprocating compressors (frame, cylinders, pistons and rings, bearings, lubrication, cooling). Gas turbines: compression, combustion, expansion, performances, technology. HSE concerns.

CORROSION, INSPECTION & INTEGRITY — 2 days

Corrosion mechanisms. Types of corrosions in the Oil & Gas industry. Corrosion prevention and monitoring, fundamentals of inspection.

HSE IN SURFACE PRODUCTION OPERATIONS — 5 days

Main hazards: inflammability, toxicity, pressure, temperature. Risk assessment tools: Job Safety Analysis (JSA). Risks in process operations: Static equipment, rotating machines, electricity, utilities. Safe isolation and start-up: degassing-inerting, mechanical lock-out, PPE. Permit to work, responsibilities, processes, risk types. Organizational framework, human factors: HSE management system. SIMultaneous OPerationS (SIMOPS), management of change, downgraded situations. Reporting and cause tree analysis.

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SAFETY ENGINEERING — 5 days

Safety engineering throughout the life of a project and during operations. Risk assessment, concepts of loss of containment, barriers, flammability. HAZID studies: methodology, Oil & Gas facilities, risks, real case study. HAZOP studies: matrix, group management, exercise. Major hazards: scenarios representation, Bowtie diagram, risk matrices and ALARP principle. Plot plan review: safety engineering approach to layout, exercise on an offshore site. Prevention of hydrocarbon release: integrity and quality control, FMEA studies, Process Safety Management. Prevention of ignition: hazardous areas classification, electricity, overpressure, HIPS, PSD, ESD.

HSE MANAGEMENT — 5 days

Overview of HSE management systems, human factors, error analysis and improvement. Fundamentals of management systems, HSE leadership, communication, commitment. Risks, identification, evaluation, management, continuous improvement. Management commitment and leadership, safety culture, HSE competency assurance, training. Strategies and HSE objectives: main indicators, legal requirements and standards. Risk management and stakeholders, operations conception and integrity. HSE planning: HSE management in projects, HSE and environmental management plans. Tools for risk assessment and execution of activities, health, ergonomics, logistics. Audits, continuous improvement: monitoring, reporting, public reports, audits, management system review.

CRISIS MANAGEMENT — 5 days

Emergency response plan: response levels, crisis management teams. Rescue planning and resources, role and responsibilities. Training and information, emergency situations responses exercises. Fire protection and detection systems, strategies and typical scenarios. Firefighting equipment, passive, active, fixed, mobile.

ENVIRONMENTAL MANAGEMENT — 5 days

Fundamentals of environmental management. Environmental, social and health impact assessment. Environmental management plan: concepts, controls and mitigation measures. Monitoring and reporting: indicators, performances, trends. Waste management plan: strategy, type of waste, collection, transport, storage, treatments. Stake holders engagement: identification, commitment, information. Environment management system: referential, certification. Energy management: efficiency, improvements.

FINAL ASSESSMENT — 2 days

Sessions

Pau - From 09/15/2026 to 12/08/2026 — **45840 €/HT**

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Training - Hydraulic workover units

HWOU-EN-P | Face-to-face only | 5 days

This course provides a thorough understanding of HWOU applications and operations

Level

Knowledge

Public

Engineers, supervisors and professionals involved in workover operations.

Objectives

Attendees will be able to implement the following skills:

- understand all the equipment on the unit and their functions
- identify specific hazards, their associated risks during operations
- design the workover program
- with some experience supervise the Workover operations using HWOU

Pedagogical & technical resources

- Participative lecturing
- Numerous Exercises
- Numerous animations & videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION: HWOU DOMAIN OF APPLICATION — 3 hours

Well completion/re-completion, installation of ESP pumps, cementing, P&A...
Main advantages of the use of HWOU.

HWOU EQUIPMENT & SPECIFICATIONS — 18 hours

Gin Pole:

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- Specification - Height & Load Capacity driven by driven by BHA/ESP length & wait.
- Cable specs/breaking strength v SWL.
- Pulley load is 2 x winch load/mechanical advantage.
- How is Gin Pole Installed.

Jack Structure:

- Jack components, functioning, hydraulic forces...
- Maintenance & repair.
- Hydraulic manifold: functioning, Option Regen to increase the speed.
- Jack's vibrations: identification & resolution.
- Martin Decker: lecture, oil, bleeding, calibration. Classic errors & resolutions.

Slips:

- Travelling & stationary slips, components & specifications.
- Slips operations & maintenance.

Power Tong:

- Components, functioning & troubleshooting.
- Safety during operations.

Hydraulic Rotary Table:

- Components & specification.
- Torque tubes and issues when drilling/milling due to torque tube length disconnecting hoses unless.
- there is a swivel.
- Kelly joint/hang off point/mousehole to minimize issues at each connection.

Winches:

- CB Winches, payout winch components.
- CB winches vs pauout winches.
- Payout winch troubleshooting.

HPU:

- Components & specifications.
- Assignments.
- Husco valves etc.
- Option for electric units.

Work Basket:

- Components & specifications.
- Safety during operations.

Consoles:

- Operator console.
- Counterbalance console.

HWOU OPERATIONS & PROCEDURES — 6 hours

Rig up/Rig down, pressure test the surface equipment.
POOH existing completion.
Downhole operations.
RIH new completion.
Case study.

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MAJOR RISKS DURING OPERATIONS **1.5 hours**

Pressure control, pipe handling, working at heights, falling objects, ...

KNOWLEDGE ASSESSMENT **1.5 hours**

Sessions

Pau - From 06/21/2027 to 06/25/2027 **4420 €/HT**

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Training - Selective Hydrogenation of the Steamcracker

HYDVAPO-EN-P | **Face-to-face only** | **3 days**

To improve the knowledge of the selective hydrogenation processes of C2, C3, C4 cuts and pyrolysis gasolines (Pygas) for better controlling the operation

Level

Skilled

Public

Operating personnel of the steam cracker manufacturing units: experienced operators, panel operators, shift leaders and all technicians involved in the operation of these sections

Objectives

Attendees will be able to implement the following skills:

- Identify key physico-chemical characteristics of the process
- Describe the process steps
- Justify process and operating safety measures

Pedagogical & technical resources

- The content of this course can be adapted to the customer's needs. The pedagogy is focused on the units concerned, under cover of a secrecy agreement if necessary
- Case studies handled in groups, based on typical situations of conduct of the sections studied
- Possible contribution of experienced staff reporting his industrial experience of the operation on a daily basis

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SELECTIVE HYDROGENATION OF THE C2 CUT — 1.25 days

Origin, characteristics and valuation of the C2 cut: origin and physical state of the cut, average composition, specifications of ethylene produced.
Identification of the impurity to be removed. Selection of the implementation of the treatment in relation to the nature of the impurity.

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Location and operating principle of the selective hydrogenation section within the steamcracker: arrangement of the reactors, characteristics of the reactions involved in the process.
Nature, properties and mechanism of action of the catalyst: typical composition, activity, selectivity, main steps of the catalytic act, main well-known poisons (carbon monoxide, hydrogen sulfide, green oils...).
Analysis of the operating conditions: simplified process flow diagram (main process control loops, standard operating conditions, available analyzers) - Operating parameters (composition of the feedstock and hydrogen-rich gas, associated flow rates, CO content, molar ratio H2/acetylene, pressure, start-up temperature and Δt of the reactor...) - Performance monitoring (conversion rate, ethylene gain) - Analysis of some schematics of the DCS.
Case studies of adjustment: materialization of the evolution of the process using defined steps according to the variation of operating variables - Possible optimization points.
Possible major incidents, process safety and associated procedures.

SELECTIVE HYDROGENATION OF THE C3 CUT 0.5 day

Origin, characteristics and valuation of the cut C3: origin and physical state of the cut, average composition, specifications of the propylene produced.
Identification of the impurities to be removed. Selection of the implementation of the treatment in relation to the nature of the impurities.
Description of the main differences between the selective hydrogenation of the C2 section and that of the C3 section: location of the section, reactions involved, catalyst.
Simplified process flow diagram, operating conditions, driving parameters, performance monitoring, digital driving overviews and associated modules.
Case studies on the tuning of the unit: evolution of the process further to the modification of operating variables according to reference adjustments - Possible optimization points.
Possible major incidents, process safety and associated procedures.

SELECTIVE HYDROGENATION OF THE C4 CUT 0.5 day

Origin, characteristics and valuation of the cut C4: origin and physical state of the cut, average composition, specifications of the butadiene 1-3 produced.
Identification of the impurities to be removed, associated constraints - Simplified process flow diagram.
The main differences between the selective hydrogenation of the C4 cut and those of the C2 and C3 cuts.
Operating conditions and performances.
Process safety and associated procedures.

TREATMENT OF PYROLYSIS GASOLINES BY HYDROGENATION 0.75 day

Origin, characteristics and valuation of the C5+ cut (Pygas): origin and physical state of the cut, average composition.
Identification of the impurities to be eliminated, associated constraints - Simplified process flow diagram.
Selective hydrogenation 1st stage.
Types of catalysts according to the content and nature of the sulfur compounds of the feedstock.
Operating conditions and performance measurement.
Process safety and associated procedures.
Hydrogenation 2nd stage.
Role of section.
Types of catalysts.
Operating conditions and performance.

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Training - Instrumentation and Process Control

ICP-EN-P | Face-to-face only | 5 days

This course provides a good overview of instrumentation and control systems and facilitates communication with experts

Level
Skilled

Public
Junior engineers and technicians from process industries

Objectives
Attendees will be able to implement the following skills:

- Read and understand a P&ID
- Identify the technology used for field instrumentation

Pedagogical & technical resources

- 50% of practice on mini process skids with industrial equipment
- Illustration of process control using dynamic simulators (IndissPlus de CORYS)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INSTRUMENT LOOPS — 0.5 day

Function, constitution, signal types. Tag naming conventions and symbolization.

SENSORS & TRANSMITTERS — 1.5 days

Technologies to measure and detect the pressure, temperature, level and flow.
Working principles. Selection criteria according to process needs.

CONTROL VALVES & ON/OFF VALVES — 1 day

Technologies and working principle.

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Specification criteria.
Accessories: limit switches, solenoid valves, positioners...

PROCESS CONTROL — 1.5 days

Controller role and performance criteria.
ON/OFF and PID controller.
Conventional control schemes: split-range, cascade, ratio, override, feed forward.
Introduction to advanced process control.

CONTROL & SAFETY SYSTEMS — 0.5 day

Role, architecture and functions of a Distributed Control Systems (DCS). Separation of control and safety systems.
Introduction to Safety Instrumented Systems (SIS).

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Training - General Layout

IMPLANT-EN-P | Face-to-face only | 3 days

This course provides knowledge on how to elaborate a general layout and take into account the various constraints

Level
Knowledge

Public
Engineers and technicians involved in Oil & Gas projects

Objectives
Attendees will be able to implement the following skills:

- Develop an implementation plan taking into account constraints: regulations, disciplines, suppliers, key project milestones
- Specify the optimization elements of an implementation
- List elements of a design review

Pedagogical & technical resources

- Develop a general arrangement on an easy case
- Review a layout using HAZID methodology

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRELIMINARY LAYOUT — 1 day

Regulatory aspects: safety distances, noise, environment, works. International standards.
Use of blocs diagrams, process flow diagrams and piping and instrumentation diagrams.
General layout: process units, storage facilities. Utilities. Technical and administrative buildings. Site access and escape ways. Tank farm layout.

KEY POINTS FOR LAYOUT — 1 day

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Review of constraints generated by the various disciplines. Associated layout criteria.
Health, Safety and Environmental constraints. Use of the results of Quantitative Risk Assessment (QRA). Design inherently safer. Safety distances. Area classification. Ergonomics. Noise concerns.
Operation and maintainability: lifting and storage area, access to equipment.
Planning and scheduling: data availability at each project stage, management of holds and change requests.

REVIEWS & OPTIMIZATION — 1 day

Design reviews using HAZID methodology.
Final layout including validated actions from reviews or equipment supplier data. Use of 3D models.
Inter-unit connection optimization. Storage area and paved areas optimization.

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Training - Column Internals

INCOL-EN-P | Face-to-face only | 2 days

This course provides a thorough and practical understanding of the working principles and use of trays and packing installed in many columns for distillation, absorption, stripping, washing, etc It covers as well the main design issues

Level

Expert

Public

Engineers and supervisory staff in the refining, petrochemical and chemical industry, involved in the design, selection or operation of the internals in distillation columns or their equivalent

Objectives

Attendees will be able to implement the following skills:

- List the different types of equipment, their strengths, limitations and areas of application
- Identify the basic elements needed for their sizing

Pedagogical & technical resources

- Active participation of trainees with exercises using an equipment sizing software
- Parts of or the whole session customizable to a virtual remote classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNOLOGY & FUNCTIONING OF TRAYS — 1 day

Basics of mass transfer between liquid and vapor: importance of the interface area, viscosity and relative volatility.
Definition of some working parameters: efficiency, capacity, flexibility, pressure drop, etc.
Different types of trays: with or without downcomers.
Different types of contacting systems for the active area: bubble caps, fixed or mobile valves.
Hydraulic working and pressure drops.
Troubles such as flooding, weeping, fouling, etc.

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Main parameters to take into account in the design of internals.
Specific features for multi-pass trays.
Equipment for transition zones as flash zone, changing of pass number, etc.
Aim of high performance trays and working principles. Advantages and fields of use.
New technology trays and implementation in the near future.
Example:

- Simulation of tray design; representation of trays in operation (video).
- Implementation of HP trays and feedback information.

TECHNOLOGY & FUNCTIONING OF PACKED BEDS 0.75 day

Random packing, structured packing, grids.
Technology of a packed bed in operation.
Operating range and pressure drop.
Recent evolution of packing.
Liquid or vapor distributors, collectors and redistributors.
Impact on the working and performance of packed beds.
Example:

- Representation of packing in operation (video); implementation of packing and evaluation of performances.
- Presentation of tests in the manufacturer's workshop.

COMPARISON & TROUBLESHOOTING OF BEDS & PACKINGS 0.25 day

Advantages and drawbacks of trays and packed beds, costs.
Respective technical performances: capacity, pressure drops, flexibility, implementation.
Detection of disturbances in the field and data analysis.
Potential solutions and efficiency.
Gammametry: method and examples of diagrams.
Example:

- Revamping an existing column.
- Case study of disturbed equipment, diagnosis and remedy.

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Training - Introduction to Basin Exploration

INFOBAS-EN-P | Face-to-face only | 5 days

This course provides a practical knowledge of petroleum exploration. It aims to develop required competencies for an effective participation in multidisciplinary project teams

Level

Awareness

Public

Non-geoscientific technicians interested in petroleum exploration techniques, young professionals in geosciences with limited experience in the E&P industry

Objectives

Attendees will be able to implement the following skills:

- Understand exploration strategy and follow the standard exploration workflow
- Get familiar with most common exploration techniques, via a multidisciplinary approach and data integration
- Acquire requested competences for basin analysis in order to assess the hydrocarbon potential and identify potential plays and related prospects

Pedagogical & technical resources

- Short daily lectures followed by exercises and hands-on sessions
- Both individual work (exercises) and team work (short case study)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIN EXPLORATION CHALLENGES, STRATEGY & WORKFLOW — 1 day

Basin potential evaluation, play concept assessment and prospect generation.
Risk analysis. Probability of success.
Prospect ranking. Decision-making process. License block leasing.
Examples.

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BASIN EXPLORATION METHODS & TOOLS — 3 days

Basin analysis:

- Geodynamics: earth deformation and basin structuration (extensional & compressional).
- Review of geological environments and related reservoir distribution.
- Sedimentary basins: sediment infill and associated traps (structural & stratigraphic).
- Hands-on practice on real examples.

Petroleum systems:

- The petroleum trilogy: source rocks, reservoir rocks and seal rocks.
- Source rock potential and maturity evaluation: hydrocarbon generation.
- Structural evolution, hydrocarbon expulsion, migration and entrapment, relative timing of events.
- Hands-on practice on real examples.

Seismic interpretation:

- Review of acquisition techniques.
- Seismic interpretation: objectives and methodology.
- Structural interpretation of basins in extensional and compressional contexts.
- Stratigraphic interpretation of basin fill.
- Hands-on practice on real examples.

Well log analysis:

- Wireline log acquisition and well log analysis.
- Review of logging tools and recorded parameters.
- “Quick-look” qualitative well-log interpretation.
- Hands-on practice on real examples.

EVALUATION OF BASIN PETROLEUM POTENTIAL — 1 day

Basin potential evaluation: tectono-stratigraphic framework, petroleum trilogy, entrapment, migration and timing.
Play assessment and mapping for exploration opportunities. Sweet spots identification.
Prospect definition and related geological risk analysis (“Prospect review card”).
Workshop on a case study.

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Training - Introduction to Reservoir Characterization

INFORCM-EN-D | Distance only | 5 days

This course provides a comprehensive overview of the reservoir characterization and modeling workflow. Over one week, participants examine the key concepts and methodologies involved in constructing a static geological model. The course offers a solid conceptual foundation that can be applied within industry-standard modeling environments

Level

Awareness

Public

Geoscientists and reservoir engineers involved in multidisciplinary teams, willing to widen their knowledge in reservoir modeling

Objectives

Attendees will be able to implement the following skills:

- Recognize the techniques and challenges related to reservoir modeling (focus on reservoir properties)
- Build required competencies for reservoir geoscientists to analyze a specific dataset and construct a reliable static model

Pedagogical & technical resources

The course combines interactive lectures aiming at understanding the principles and workflow involved in developing a 3D geological model.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION — 0.5 day

Basic principles of reservoir characterization.
Working with scale.
Overview of the geomodeling workflow.

SRUCTURAL MODELING — 1 day

© IFPTraining

Structural modeling concepts.
Gridding techniques (Pillar grid & volume-based approaches).

PROPERTY MODELING: DATA PREPARATION AND ANALYSIS — 0.5 day

Data distribution analysis.
Blocking well data.
Vertical proportion curves (VPCs).
Stationarity concepts.

PROPERTY MODELING: DETERMINISTIC AND STOCHASTIC APPROACHES — 1 day

Deterministic methods review.
Kriging techniques.
Variogram modeling.
Sampling effects.
Simulation vs. estimation.

PROPERTY MODELING: DISCRETE AND CONTINUOUS PROPERTIES — 1 day

Facies modeling.
Fault seal analysis.
Petrophysical property modeling.

VOLUMETRICS AND UPSCALING — 0.5 day

Volume calculation.
Upscaling to the reservoir simulation grid.

UNCERTAINTY ANALYSIS — 0.5 day

Methods and workflow for uncertainty analysis.

Sessions

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Training - Introduction to Reservoir Characterization

INFORCM-EN-P | Face-to-face only | 5 days

This course provides a comprehensive overview of the reservoir characterization and modeling workflow. Over one week, participants examine the key concepts and methodologies involved in constructing a static geological model. The course offers a solid conceptual foundation that can be applied within industry-standard modeling environments

Level

Awareness

Public

Geoscientists and reservoir engineers involved in multidisciplinary teams, willing to widen their knowledge in reservoir modeling

Objectives

Attendees will be able to implement the following skills:

- Recognize the techniques and challenges related to reservoir modeling (focus on reservoir properties)
- Build required competencies for reservoir geoscientists to analyze a specific dataset and construct a reliable static model

Pedagogical & technical resources

The course combines interactive lectures aiming at understanding the principles and workflow involved in developing a 3D geological model.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION — 0.5 day

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Variogram modeling.
Sampling effects.
Simulation vs. estimation.

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Fault seal analysis.
Petrophysical property modeling.

VOLUMETRICS AND UPSCALING — 0.5 day

Volume calculation.
Upscaling to the reservoir simulation grid.

UNCERTAINTY ANALYSIS — 0.5 day

Methods and workflow for uncertainty analysis.

Sessions

Rueil-Malmaison - From 10/19/2026 to 10/23/2026 — **3650 €/HT**

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Training - Drilling Fundamentals

INFOR-EN-P | Face-to-face only | 5 days

This intensive course provides a comprehensive overview of drilling and completion techniques and operations

Level

Awareness

Public

Professionals interested but not involved in drilling operations for Oil & Gas, geothermal and storage wells (i.e. geologists, geophysicists, reservoir engineers, completion, production and process staff, platform designers, economists, etc.)

Objectives

Attendees will be able to implement the following skills:

- recognize the vocabulary specific to drilling
- understand the basics of well design
- define the functions of drilling fluids (mud & cement)
- identify and describe drilling operations and equipment used
- identify the different professionals involved in drilling and learn about their roles and responsibili-ties

Pedagogical & technical resources

- Videos and animations
- Exercises
- Visit to a drilling site*
- * When the course is delivered in Rueil-Malmaison, practical illustration is provided by video

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ORGANIZATION OF DRILLING OPERATIONS — 0.5 day

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Drilling principles.
Cost, duration of a drilling job.
Different people involved, types of contracts.
Safety.

DRILLING PRINCIPLES - EQUIPMENT 1.25 days

Different types of bits.
Drilling string.
Drilling rig:

- Hoisting function and equipment.
- Pumping function and equipment.
- Rotating function and equipment.
- Power function.
- Safety function and equipment.

Mud and solid treatment.

WELL ARCHITECTURE 0.5 day

Reservoir notions.
Functions of different casings.
Parameters to be taken into account to determine well architecture.
Examples of architectures.

SPECIAL OPERATIONS 1.25 days

Cementing operations.
Wellhead.
Directional drilling.
Well control.
Fishing jobs.
Wireline logging, well test (DST).

DRILLING ON A SIMULATOR (PAU) 0.25 day

Use of a well control simulator to show the drilling operations (tripping, drilling, running of casings).

OFFSHORE DRILLING OPERATIONS 0.25 day

Different types of rigs.
Problems related to their use.

WELL COMPLETION 0.25 day

Reservoir-wellbore interface.
Equipment for flowing wells.
Well intervention.

TECHNOLOGIES IN USE FOR ENERGETIC TRANSITION 0.25 day

Geothermal wells.
Underground storage wells.
Hybrid-powered rig equipped with battery Energy Storage System (ESS) to reduce emissions.
Utilization of production associated gas to power gas turbine to reduce the carbon footprint.
Environmental technology (i.e. oilfield waste disposal control and decommissioning of offshore oil and gas installations).

VISIT OF A DRILLING SITE* 0.5 day

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Sessions

Rueil-Malmaison -	From 10/12/2026 to 10/16/2026	**4320 €/HT**
Pau -	From 03/29/2027 to 04/02/2027	**4420 €/HT**
Rueil-Malmaison -	From 06/28/2027 to 07/02/2027	**4420 €/HT**
Rueil-Malmaison -	From 10/11/2027 to 10/15/2027	**4420 €/HT**

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Training - Introduction to Reservoir Engineering

INFORES-EN-D | Distance only | 5 days

This course provides a general understanding of main Geosciences & Reservoir Engineering concepts and data used in multidisciplinary Oil & Gas fields development projects and the way these data and concepts are integrated

Level

Awareness

Public

Technicians, engineers, managers and Oil & Gas industry staff facing day-to-day Geosciences and Reservoir Engineering concerns

Objectives

Attendees will be able to implement the following skills:

- Describe the main steps of Oil & Gas fields exploration and development workflow
- Describe petroleum systems, reservoir rocks and the corresponding fundamental properties as well as the related techniques to get relevant information (core analysis, logs, well testing)
- Describe reservoir fluids and the corresponding fundamental properties
- Describe main reservoir production mechanisms and the related expected performance
- Describe the concepts of resources and reserves and the related concepts of risks and uncertainties and economical evaluation

Pedagogical & technical resources

- E&P and Reservoir Engineering workflow interactive presentation
- Interactive lectures, exercises and short movies
- Dynamic reservoir simulator overview

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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E&P & RESERVOIR ENGINEERING WORKFLOW — 0.25 day

Introduction to E&P and reservoir engineering workflow through interactive work.

FUNDAMENTALS OF RESERVOIR CHARACTERIZATION — 1.25 days

Petroleum geology:

- Type of rocks.
- Hydrocarbon genesis.
- Petroleum systems.

Rock properties and petrophysics:

- Cores and coring operations.
- Porosity, permeability, saturations.
- Capillary pressure, wettability, relative permeability.

Well log interpretation:

- Logging operations and log environment (borehole, invasion profile).
- Fundamental equations for log interpretation in clean formations.
- Main open-hole logs. Quick-look qualitative interpretation technique.

Reservoir fluids properties (oil, gas, water):

- Fluids composition (hydrocarbons).
- Thermodynamics equilibrium. Phase envelope.
- Main PVT parameters: FVF, Rs, GOR, etc.

FUNDAMENTALS OF RESERVOIR ENGINEERING — 2 days

Well testing and well test analysis:

- Well and reservoir performance and the need for testing.
- Darcy's law, diffusivity equation and typical flow regimes.
- Productivity index, radius of investigation.
- Well test interpretation: pressure curves analysis, pressure derivative.

Drive mechanisms:

- Primary recovery: oil reservoirs (natural depletion, natural water drive) and gas reservoirs.
- Secondary recovery: water flooding, gas injection.
- EOR: miscible gas injection, chemical flooding, thermal flooding.

FUNDAMENTALS OF RESERVOIR SIMULATION — 0.5 day

Principles and objective of reservoir simulation:

- Reservoir simulation models - Building the models.
- Reservoir simulators - Black-oil, compositional, thermal, chemical, etc.

Reservoir simulation workflow.

- Data review. History match. Production forecast.

Introduction to a reservoir simulator:

- Data set review. Grid. Petrophysical data. PVT data. Wells and production constraints.
- Analyzing some simulation results on various reservoir models.

RESERVES DEFINITION & CLASSIFICATION — 0.5 day

Reserves and resources:

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- Economics criteria.
- Risks and uncertainties.
- Reserves and resources definition and classification.

Oil & Gas reserves. Some figures.

Sessions

Classe virtuelle - From 11/02/2026 to 11/06/2026 **3650 €/HT**

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Training - Introduction to Petroleum Engineering

INFPG-EN-D | Distance only | 5 days

This course provides a complete overview of petroleum engineering covering primary issues of reservoir, drilling, completion and surface production

Level

Awareness

Public

Professionals in technical, commercial, legal, financial or human resources departments, within the petroleum industry or related sectors, who need a general knowledge in petroleum engineering

Objectives

Attendees will be able to implement the following skills:

- know about major issues in petroleum engineering
- understand the various operations carried out during field development, from drilling to surface treatment
- know the vocabulary needed to communicate with E&P professionals
- identify the contribution of the different business lines and interact effectively with the different technical teams

Pedagogical & technical resources

- Interactive animation by E&P senior experienced lecturers
- Visits to a drilling rig and a production site (in Pau training center)*
- Numerous videos
- * When the course is delivered in Rueil-Malmaison, practical illustration is provided by video

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO THE OIL & GAS INDUSTRY — 0.25 day

Introduction to the energy business: energy resources; energy demand and supply.

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Scope of the Oil & Gas industry:

- Context: producer and consumer countries; national/ independent/ international oil companies; services companies; international organizations.

Risks related to the Oil & Gas industry.

RESERVOIR ENGINEERING — 1 day

Introduction to petroleum geology:

- Geodynamics of the earth. Sedimentary basins. Structural deformations (folds & faults).
- Clastic and carbonate depositional environments and reservoirs.
- Elements and processes of the petroleum system (source, reservoir, seal, traps).

Subsurface models, inputs data and concepts:

- Seismic data gathering, processing and interpretation.
- Well data acquisition and analysis.
- Formation evaluation and sampling (logs and cores).

Reservoir characterization and modeling:

- Data integration; introduction to reservoir modeling.
- Management of subsurface uncertainties.
- Volumetrics (in-place hydrocarbon estimation).

Subsurface Development Options: reservoir engineering:

- Field development planning.
- Drainage mechanisms: introduction to EOR and storage.
- Different types of reservoir effluents and their behavior.
- Unconventional resources:
- Introduction to unconventional developments.
- Non-conventional resources and their extraction techniques.
- Environmental aspects.

WELL — 2 days

Drilling:

- Organization on site.
- Well design.
- Drilling rig: functions hoisting, rotations, pumping, power and safety.
- Drilling rigs.
- Drilling operations chronology.
- Drilling operations: casing, cement job, directional drilling, fishing, D.S.T.
- Drilling rig visit*.

Downhole production/completion:

- Completion design.
- Reservoir-wellbore interface.
- Well stimulation.
- Well equipment and maintenance.
- Activation.

Offshore wells:

- Selection of the drilling and production rigs - Platforms.

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- Design and specific equipment.

OIL & GAS PROCESSING FACILITIES — 1.75 days

Produced fluid properties.
Gathering system, hydrate inhibition.
Crude oil treatment: separation, crude oil dehydration and desalting processes.
Gas processing: dehydration, sweetening, NGL recovery processes.
Metering and shipment.
Visit of a production site (if available)*.

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Training - Introduction to Petroleum Engineering

INFPG-EN-P | Face-to-face only | 5 days

This course provides a complete overview of petroleum engineering covering primary issues of reservoir, drilling, completion and surface production

Level

Awareness

Public

Professionals in technical, commercial, legal, financial or human resources departments, within the petroleum industry or related sectors, who need a general knowledge in petroleum engineering

Objectives

Attendees will be able to implement the following skills:

- know about major issues in petroleum engineering
- understand the various operations carried out during field development, from drilling to surface treatment
- know the vocabulary needed to communicate with E&P professionals
- identify the contribution of the different business lines and interact effectively with the different technical teams

Pedagogical & technical resources

- Interactive animation by E&P senior experienced lecturers
- Visits to a drilling rig and a production site (in Pau training center)*
- Numerous videos
- * When the course is delivered in Rueil-Malmaison, practical illustration is provided by video

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO THE OIL & GAS INDUSTRY — 0.25 day

Introduction to the energy business: energy resources; energy demand and supply.

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Scope of the Oil & Gas industry:

- Context: producer and consumer countries; national/ independent/ international oil companies; services companies; international organizations.

Risks related to the Oil & Gas industry.

RESERVOIR ENGINEERING — 1 day

Introduction to petroleum geology:

- Geodynamics of the earth. Sedimentary basins. Structural deformations (folds & faults).
- Clastic and carbonate depositional environments and reservoirs.
- Elements and processes of the petroleum system (source, reservoir, seal, traps).

Subsurface models, inputs data and concepts:

- Seismic data gathering, processing and interpretation.
- Well data acquisition and analysis.
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- Different types of reservoir effluents and their behavior.
- Unconventional resources:
- Introduction to unconventional developments.
- Non-conventional resources and their extraction techniques.
- Environmental aspects.

WELL — 2 days

Drilling:

- Organization on site.
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- Drilling rig: functions hoisting, rotations, pumping, power and safety.
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- Completion design.
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- Well stimulation.
- Well equipment and maintenance.
- Activation.

Offshore wells:

- Selection of the drilling and production rigs - Platforms.

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- Design and specific equipment.

OIL & GAS PROCESSING FACILITIES — 1.75 days

Produced fluid properties.
Gathering system, hydrate inhibition.
Crude oil treatment: separation, crude oil dehydration and desalting processes.
Gas processing: dehydration, sweetening, NGL recovery processes.
Metering and shipment.
Visit of a production site (if available)*.

Sessions

Rueil-Malmaison -	From 11/16/2026 to 11/20/2026	**4320 €/HT**
Pau -	From 02/08/2027 to 02/12/2027	**4420 €/HT**
Rueil-Malmaison -	From 04/12/2027 to 04/16/2027	**4420 €/HT**
Rueil-Malmaison -	From 11/15/2027 to 11/19/2027	**4420 €/HT**

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Training - Upstream Maintenance Engineer

INGMAIN-EN-P | Face-to-face only | 60 days

This training provides the technical knowledge to quickly and successfully integrate maintenance or design teams of Oil & Gas production facilities

Level

Knowledge

Public

Engineers and technical executives, wishing to get specialized in the maintenance of Oil & Gas and energy production installations. Junior engineers with one of the following positions: site engineer, support engineer, design/engineering engineer or project engineer. Senior engineers in the framework of a retraining or skill development

Objectives

Attendees will be able to implement the following skills:

- Explain operation and maintenance of static equipment (well head, pipe, line elements, tanks, thermal equipment...)
- Master the technology, working principle, operation, maintenance and safety of the rotating machines used in Oil & Gas production and energy production
- Understand the behavior of items such as bearings and seal packings in the machines
- Identify the electrical power production and distribution, the instrumentation and the control of the systems
- Participate in or carry out the maintenance management of one or several production sites

Pedagogical & technical resources

- Interactive animation by industrial, maintenance and energy specialists
- Numerous applications and illustrations
- Understanding of all energy and the system maintenance areas
- Disassembly, expertise, measurements, re-assembly of pumping equipment in an equipped workshop
- Practical application of new knowledge: site energizing project, organization of major machines overhaul, use of manufacturer folders... (10 days and assessment by a jury)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including final project presentation in front of a mixed jury of assessors composed of Company representatives and IFP Training Lecturers

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the

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specific needs of learners from the professional world

Program

WELL EQUIPMENT & WELL EFFLUENT TREATMENTS — 2 days

Notions of drilling/completion. Artificial lift: pumping, gas lift. Oil field processing (stabilization, dehydration, sweetening) and water processing (production and injection water). Gas processing and conditioning (dehydration, sweetening).

TECHNOLOGY & MAINTENANCE OF STATIC EQUIPMENT — 3 days

Wellhead, pipe, fittings and line equipment, safety valve, tanks, pressure vessel. Thermal equipment: heat exchangers, boilers, heaters, condensers. Standards, design, operation, inspection, maintenance. PFD, P&ID, isometric drawings.

TECHNOLOGY & MAINTENANCE OF PUMPS — 5 days

Pumping fundamentals (pressure, flow rate, conservation of energy, mechanical and hydraulic powers...). Dynamic pumps. Functional approach: different types of dynamic pumps and integration into the processes; generic functional study (process, sealing, supporting/guiding, lubrication). Positive displacement pumps: different types (piston pumps and rotary pumps); operating principles, influence of the clearances, internal leaks, impact of the type of product on the flow rate and pressures.
Preventive maintenance, condition-based maintenance (measurement of vibrations, oil analysis, thermography), corrective maintenance (troubleshooting and repair techniques). Analysis of manufacturer folders and P&ID.

PRACTICE IN MECHANICAL WORKSHOP — 5 days

Technical drawing convention: 2D and isometric views, projections, sections and cut-away views, perspectives, technical vocabulary. Parts and mechanical systems dimensioning, ISO tolerances and main adjustments. Dimensional tolerances and operating clearance. Geometric tolerances and surface condition characterization. Presentation and implementation of the tools in a metrology workshop, performances and rules of use. Disassembly, expertise, measurements and re-assembly of single-shaft and double-shaft ends pumping equipment.

TECHNOLOGY & MAINTENANCE OF COMPRESSORS — 5 days

Compression fundamentals (ideal gas, real gas, isentropic compression, polytropic compression).
Dynamic compressors: different types and integration into the processes; technology of essential and auxiliary elements: stator, rotor, bearings, thrust, sealing, oil circuit, sealing devices... Reciprocating compressors: different types and integration into the processes; technology of essential and auxiliary elements (cylinder, piston, valves, sealing, spacers, crankshaft, rod, moving part and cylinder lubrication, cooling circuit, sealing devices, connection to the flare). Rotary compressors (screws, liquid ring, lobes, vanes). Preventive, condition-based maintenance. Troubleshooting and repair techniques. Analysis of information folders and P&ID. Troubleshooting.

TECHNOLOGY & MAINTENANCE OF DRIVING MACHINES — 5 days

Gas and steam turbines. Diesel motors. Technology, working principle, main and auxiliary equipment operation and maintenance. Operation and performances (impact of the operating conditions). Driven machine/driving machine coupling.

COMMON ELEMENTS OF MACHINES & STRUCTURES — 5 days

Moving part lubrication: grease, oil (designation, characteristics). Pressurized and bubbled lubrication, sealing rings. Rotors and shafts: balancing (unbalance, eccentricity, balancing class) and shafts geometric alignment. Roller bearings (designation, internal clearances, assembling rules), plain bearings (calculations, incidents, instability) and magnetic bearings. Shaft output seals: braided packings, mechanical seals (functioning,

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description of the different types, conditions of stability, auxiliaries); P&ID study of a complex mechanical seal, of a centrifugal compressor. Couplings and alignment. Machine shaft alignment techniques. Corrosion: main types. Corrosion prevention and basics of inspection.

TECHNOLOGY & MAINTENANCE OF ELECTRICAL EQUIPMENT — 5 days

Sources of electrical power (alternator, generator) and motors (alternate and direct current): functioning, technology, operation, maintenance, safety. Electrical power distribution and networks: constitution of HV and LV networks, distribution philosophy, control and protection elements, transformers, circuit breakers; redundancy of sources and supply means. Earthing and neutral systems. Protection against the electrical risks and hazardous areas and ATEX standards.

INSTRUMENTATION, CONTROL, SAFETY INSTRUMENTED SYSTEMS — 5 days

Simple and complex measuring devices, technologies and functional study. Signals and signal transmission. Control and safety devices (control valve, on/off valves). Control structures: role, working principle, direct or inverted action, operating modes. Control loops: simple, cascade and split-range. Distributed Control Systems (DCS) and Safety Instrumented Systems (SIS): safety loops, HIPS, ESD, EDP, F&G technologies.

HSE DURING MAINTENANCE WORKS — 5 days

Identification of the hazards and specific risks on site, in maintenance situation. Job safety analysis procedures and steps, permit to work. Audit and improvement of HSE performance. Safety in construction and maintenance works (lifting and rigging, sand blasting, test, works on electrical equipment, in confined spaces, welding...). HSE management system: SIMultaneous OPerationS (SIMOPS), management of changes, downgraded situation, human factors.

MAINTENANCE MANAGEMENT — 5 days

Maintenance policies and types: financial objectives. Maintenance cost versus failure cost. Different types of maintenance and respective importance: systematic preventive, condition-based, predictive, corrective. Preventive maintenance tools, measurement, follow-up and reliability engineering (fault tree, Pareto, identification of the “bad actors”). Methods and current trends: criticality analysis, Japanese and American methods, risk analysis-based decisions. Studied methods application: criticality rankings, levels of emergency, stocks of spare parts. Outsourcing and subcontracting, shutdown management, improvement plans.

PROJECT: MAINTENANCE ENGINEERING - JURY — 10 days

During the final project, participants will work as teams and develop a project related to the maintenance, the energizing, the functioning of the support, the management of a machine overhaul, a manufacturer brief... This 10-day project is based on existing data. Participants are coached all along the project to help them reach the objectives set: writing a report and presentation to a jury of personnel from the company and IFP Training.

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Training - Well Completion and Servicing

INPF-EN-P | Face-to-face only | 5 days

This course provides a comprehensive overview of completion and well intervention operations

Level

Awareness

Public

Engineers and technicians, from operating or service companies, interested but not involved in well completion or servicing: geologists, geophysicists, reservoir engineers, drillers, production and process staff, platform designers, economists, etc

Objectives

Attendees will be able to implement the following skills:

- recognize the connection between reservoir and completion
- distinguish between the main configurations and techniques of completion
- review advantages and issues of various techniques
- understand the techniques & means of well intervention
- communicate efficiently with Oil & Gas service companies and equipment suppliers

Pedagogical & technical resources

- Well control on a simulator
- Equipment and cutaway tools display
- Exercises, role-playing sessions, project and case studies
- Summary notes prepared and presented by the participants

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NECESSARY FUNDAMENTALS OF RESERVOIR ENGINEERING FOR COMPLETION	**0.75 day**

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Introduction: area concerned by completion, main steps.
Geological trap, rock properties.
Fluid behavior.
Reservoir characterization, well testing.
Recovery mechanisms.

NECESSARY FUNDAMENTALS OF DRILLING FOR COMPLETION — 0.25 day

Drilling and casing program, casing cementing.
Wellhead and safety equipment (BOP).

INTRODUCTION TO COMPLETION — 0.5 day

Concerned area, main steps (for memory).
Main factors influencing completion design.
Completion configurations: requirement, main configurations.

WELL PRODUCTIVITY & RESERVOIR-WELLBORE INTERFACE (PART 1) — 0.75 day

Overall approach of the well flow capacity:

- Inflow and outflow performance.
- Need for artificial lift.

Drilling (and casing) of the pay zone: specific aspects.
Problems linked to restoring the cement job.
Perforating: principle, main methods.

EQUIPMENT OF NATURALLY FLOWING WELLS — 1 day

Functions to be carried out and corresponding pieces of equipment, main configurations of production string(s).
Technology and handling of main pieces of equipment: production wellhead, tubing, packer, downhole devices, subsurface safety valve.
Running in hole procedure.
Present trends: full-bore..., intelligent completion.

RESERVOIR-WELLBORE INTERFACE (PART 2) — 0.5 day

Stimulation: acidizing, hydraulic fracturing.
Sand control.
Horizontal drain specificity: interest, reservoir-wellbore interface.

ARTIFICIAL LIFT — 0.5 day

Sucker rod pumping and electrical submersible pumping: principle, main components, factor to consider for design, operating problems.
Continuous gas lift: principle, factors to consider for design, unloading, operating problems.
Field of application.

WELL SERVICING & WORKOVER — 0.5 day

Main jobs: measurement, maintenance, workover.
Operations on live wells: wireline, coiled tubing, snubbing.
Operations on killed wells: workover.

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Rueil-Malmaison - From 11/23/2026 to 11/27/2026 — **4320 €/HT**

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Rueil-Malmaison - From 11/22/2027 to 11/26/2027 **4420 €/HT**

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Training - Inspector

INSP-EN-P

Face-to-face only

40 days

This training aims to increase skills on inspection of static equipment. This course will provide an IFP Training Certificate according to the IFP Training procedures

Level

Knowledge

Public

Inspection, maintenance and HSE Engineers, supervisors and staff involved in integrity and inspection of equipment

Objectives

Attendees will be able to implement the following skills:

- List the main material used in the oil and gas or petrochemical plants
- Select the main standards and codes used for pressure vessels and piping
- Describe the components of pressure vessel, piping and accessories
- List the origin of steels and alloys equipment degradations in the Oil & Gas and chemical industries
- Select appropriate NDT and alternative prevention tools to monitor corrosion effectively
- Review repair welding processes used in Oil & Gas industry
- Supervise and control efficiently contracted painting jobs and other protection devices
- Learn RBI strategy for a petrochemical or chemical unit

Pedagogical & technical resources

- Active teaching methods are used to promote individuals experience
- Learning process including case studies
- Visits of construction or repair workshops
- Each participant can present its daily work and analysis: regulations and local guidelines used, repair methods and code, welding specifications, NDT, qualification of controllers
- Mini-projects team works according to detailed program
- Practices in workshops if possible
- Individual project to finalize the program
- Practical internal inspection of pressure vessel during shutdown and external inspection of piping

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

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Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: MATERIAL & STATIC EQUIPMENT — 5 days

Metallurgy of ferrous and non-ferrous material used in process industries, structure of steels and alloys. Mill certificate review.
Piping and flanges, different types of piping equipment: pipes, flanges and gaskets, valves, steam traps, bellows, safety valves, rupture discs; piping codes and standards, piping classes, pressure resistance (ISO-PN, series). Pipe supports. Insulation and tracing.
Vessels: technology of separator drums; technology and internals of distillation columns and reactors; storage tanks - different types (atmospheric, pressurized, cryogenic...); design, technology; main safety and operating equipment; reliability criteria.
Thermal equipment: TEMA standard heat exchangers; thermal performance (fluid flow distribution, characteristics & technology).
Different types of furnaces and their characteristics. Boiler technology.

MODULE 2: REGULATIONS - RELIEF VALVES & RUPTURE DICS — 5 days

Local rules and international regulations applicable for pressure equipment. Pressure equipment directive requirements. International construction codes: ASME VIII, EN 13445. Thickness calculation for shell, bottom, pressure and vacuum, reinforcements of nozzles, pressure test. Existing equipment: study local and international practices: API 510, ASME B16.5 & B31.3, API 570 and 571.
Pressure relief valves and rupture discs technology and installation. Available technologies and selection criteria for liquid and gas: API 521 & API 520 part 1, international codes, norms, material, spring, orifice size, bellows. Field installation (API 520 part 2): connections, pressure drop, supports, noise, plugging risks. Periodic inspection and maintenance API 527, pop test, kellog test. Study cases.

MODULE 3: CORROSION & CORROSION PREVENTION — 5 days

Different types of industrial corrosion: thinning (corrosion under isolation, corrosion-erosion, galvanic, high temperature sulfur corrosion, oxidation...), cracking (hydrogen induced cracking, high temperature hydrogen attack, intergranular, stress corrosion, amine cracking...), pitting (passivation...), metallurgical deterioration (brittle fracture, creep, fatigue).
Corrosion prevention: material selection, detailed engineering design; corrosion control by means of sampling, use of corrosion coupons and probes; inhibitors.

MODULE 4: INSPECTION, NON-DESTRUCTIVE TESTING & REPAIR WELDINGS — 5 days

Basic and advanced NDT techniques: visual inspection, liquid Penetrant Test (PT), Magnetic field Test (MT), Radiographic Test (RT), Ultrasonic Testing (UT, TOFD, phase array), Leak and pressure Testing (LT), Electromagnetic Testing (ET), Positive Material Identification (PMI), Infrared Thermography (IR), Acoustic Emission (AE). Practical use.
Welding: cutting processes, forming, welding used on vessels and pipework (SMAW, GTAW, GMAW, SAW...). Welding parameters and weldability of main materials (CS, SS, LAS...). Welding Procedure Qualification Record (WPQR) - Welding Procedure Specification (WPS) - Welder Performance Qualification (WPQ). Post weld heat treatment. Welding safety and health issues.

MODULE 5: INDIVIDUAL PROJECT: REPAIR WORKS ON PRESSURE VESSEL OR PIPING — 5 days

Case study - Project: subject submitted by the lecturer: study of pressure equipment degradations and consequences.

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Evaluate the damage and its potential kinetics of evolution (remaining life for thinning or risk of cracks propagation). Advise repair or modification, non-destructive testing and inspection in accordance with the applicable specifications and standards. Turnaround scheduling, including definition and selection of milestones. Check possibility for on line temporary repair or hot work during plant shutdown. Individual project oral presentation.

MODULE 6: PAINTINGS, COATINGS & CATHODIC PROTECTION 5 days

Characteristics and properties of paintings and coatings. Paint components. Binders and plastifiers, pigments, fillers, colorants, additives, solvents. Physical characteristics. Paint manufacture and recent developments. Different types of industrial paint and for special environment. Composition of a paint system (role of coats and compatibility). Inspection, control and commissioning.
Cathodic protection - Principles and applications. Wet corrosion mechanisms and prevention. Principles of cathodic protection.
Impressed current and sacrificial anodes. Design and selection of cathodic protection systems. Performance monitoring. Field potential measurement. Monitoring in sea water and in soil. Norms and standards (EN 15257).

MODULE 7: RISK BASED INSPECTION (RBI) 5 days

Identification of the degradation mechanism for a corrosion loop based on API 571. Description of API 580 RBI methodology for a petrochemical or chemical plant. Probability and consequence of a failure using API 581 workflow and simplified alternative tools. Identification and ranking of piping and pressure vessels in a risk matrix. Extend inspection periodicity or set up an efficient inspection strategy (mitigation by means of more efficient NDT, design improvement or Process safety management enhancement).
Mini projects application to study cases as teamworks.

MODULE 8: FINAL PROJECT - PRACTICAL INSPECTION 5 days

Practical external and internal inspection of a pressure vessel during a plant shutdown and an external on line piping inspection.
Preparation: identify the design conditions, the inspection history and detail the inspection strategy.
On site: plan the NDT; perform vessel and piping inspection according to the specifications; identify any corrosion.
Write an inspection report based on the actual tests, update the RBI and propose an updated inspection strategy.
Individual oral presentation and evaluations related to the IFP Training Certification.

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Training - Introduction to hydrogen compression

INTCOHY-EN-P | Face-to-face only | 2,5 days

This course gives the key points of hydrogen compression and compressors operation, no matter the use (hydrogen production, transportation, storage, end use)

Level

Awareness

Public

Engineering staff involved in hydrogen compression

Objectives

Attendees will be able to implement the following skills:

- Explain the influence of operating parameters on compressor performance taking into account the physical phenomena related to compression and a change in gas nature
- List the components of each compressor type and their importance to machine selection and sizing

Pedagogical & technical resources

- Interactive lecture
- Use of actual machine parts and open machines
- Study of actual drawings, cutaways, PIDs...

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

COMPRESSORS TECHNOLOGY — 1 day

Hydrogen compression: compressors types. Practical implementation through a given process.
Technology: Casing, stationary and rotating parts, according to the machine type.
Auxiliaries: lube oil, sealing,... according to the machine type.
Safety devices: vibrations, bearings/thrust bearing temperatures, oil pressure... according to the machine type.
Natural gas compressor technology vs hydrogen one.
Demonstrations: study of actual parts and open machines.

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COMPRESSORS PERFORMANCES — 1 day

Gas Compression: key points. Natural gas compression vs hydrogen compression.
Compression mechanism through a compression stage, according to the machine type.
Operating limits, according to the machine type: discharge temperature, surge, maximum pressure...
Performance vs operating conditions: pressure ratio, suction conditions, rotation speed...
Vibrations, critical speeds.

COMPRESSORS OPERATION AND SURVEY — 0.5 day

Flow control.
Case study: flow control vs various operating conditions.
Start-up and shutdown. Associated risks.
Compressor survey key points.

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Training - Well Operations and Completion Engineering

INTP-EN-P | Face-to-face only | 40 days

This course provides an in-depth, practical understanding of completion techniques, operations, equipment and procedures

Level
Knowledge

Public
Young engineers and supervisors involved in drilling and completion, well production and operations

Objectives
Attendees will be able to implement the following skills:

- Assist in completion operations on site; and, with some experience, manage those operations
- Define a completion program, and, with some on-site experience, design and implement such a program
- Pass the IWCF “Well Intervention and Pressure Control” certification

Pedagogical & technical resources

- Equipment and cutaway tools display
- Exercises, role-playing sessions and case studies
- Summary notes prepared and presented by the participants
- 5-day completion project, ending with a presentation to a jury
- Knowledge assessment on a weekly basis

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1 - FUNDAMENTALS OF DRILLING & COMPLETION	**5 days**
MODULE 2 - WELL PRODUCTIVITY & RESERVOIR - WELLBORE INTERFACE	**5 days**

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MODULE 3 - WELL COMPLETION EQUIPMENT & PROCEDURES FOR FLOWING WELLS — 5 days

MODULE 4 - WELLBORE TREATMENTS — 5 days

MODULE 5 - ARTIFICIAL LIFT & WELL INTERVENTION FUNDAMENTALS — 5 days

MODULE 6 - COILED TUBING & NITROGEN OPERATIONS IN COMPLETION & WORKOVER — 5 days

MODULE 7 - WELL INTERVENTION & PRESSURE CONTROL — 5 days

MODULE 8 - PROJECT ON COMPLETION PROGRAM — 5 days

Completion design.
Tubing calculations.
Fluids design.
Chronology of operations.
Presentation to a jury.

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Training - Overview of white hydrogen

INTROH2-EN-P | Face-to-face only | 3 days

Although Hydrogen has been considered as ancillary component of underground fluids in the past, its valorization is now key in the Energy Transition process. This course provides participants with a general knowledge of Hydrogen (H2) and of associated Helium (He) specificities and valorization challenges of these chemical species

Level

Awareness

Public

Junior energy professionals getting involved in white hydrogen projects.

Objectives

Attendees will be able to implement the following skills:
Upon completion participants will be able to:

- Understand the geological context leading to H2/He underground presence,
- Identify underground storage types and specificities,
- Review existing white hydrogen projects.

Pedagogical & technical resources

Interactive presentations, practical exercises, case studies.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NATURAL H2 WITHIN HYDROGEN BUSINESS — 0.5 day

The place of natural hydrogen in the manufactured hydrogen business: energy transition, world heterogeneity, hydrogen today, its uses in chemistry.
Its future use and growth as energy vector and source.
Price relations between manufactured and natural hydrogen.

NATURAL H2 GEOLOGY & RESERVOIRS — 1 day

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Natural hydrogen systems and geological knowledge.
Sources, migration, reactivity, accumulation and leakage.
Associated Gases (Helium, Methane...).
Dynamic perception of a blend hydrogen system.

EXPLORATION TOOLS & NATURAL H2 PROXIES — 0.5 day

Surface geochemistry, gamma spectrometry, remote sensing, active and passive seismic, magnetic anomalies, drilling and mud-logging specificities, etc.

H2 PROJECTS REVIEW — 1 day

Case Studies
Examples (Mali, Australia, USA, Brazil, Europe...)

Sessions

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Training - Geological Characterization and Modeling - Integrated Workshop

IRCM-EN-P

Face-to-face only

10 days

This course delivers comprehensive, practical training in the reservoir characterization and modeling workflow, with an intensive week of hands-on exercises on a case study. The workshop focuses on applying concepts directly in software to bridge the gap between static geological characterization and dynamic reservoir behavior

Level

Knowledge

Public

Geoscientists and reservoir engineers involved in multidisciplinary teams, willing to widen their knowledge in reservoir modeling

Objectives

Attendees will be able to implement the following skills:

- Provide a clear understanding of techniques and challenges related to reservoir modeling (focus on reservoir properties)
- Build required competencies for analyzing datasets and constructing reliable static model
- Emphasize reservoir modeling main goal: reduce subsurface uncertainties (reduce risk and optimize investments)

Pedagogical & technical resources

The course combines interactive lectures with practical, step by step exercises aimed at developing a 3D geological model using Petrel™, the industry-leading software for geomodelling.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION — 0.5 day

Basic principles of reservoir characterization.
Working with scale.

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Overview of the geomodeling workflow.

SRUCTURAL MODELING — 1 day

Structural modeling concepts.
Gridding techniques (Pillar Grid & Volume-Based Approaches).

PROPERTY MODELING: DATA PREPARATION & ANALYSIS — 0.5 day

Data distribution analysis.
Blocking well data.
Vertical proportion curves (VPCs).
Stationarity concepts.

PROPERTY MODELING: DETERMINISTIC AND STOCHASTIC APPROACHES — 1 day

Deterministic methods review.
Kriging techniques.
Variogram modeling.
Sampling effects.
Simulation vs. estimation.

PROPERTY MODELING: DISCRETE AND CONTINUOUS PROPERTIES — 1 day

Facies modeling.
Fault seal analysis.
Petrophysical property modeling.

VOLUMETRICS AND UPSCALING — 0.5 day

Volume calculation.
Upscaling to the reservoir simulation grid.

UNCERTAINTY ANALYSIS — 0.5 day

Methods and workflow for uncertainty analysis.

APPLICATION ON SOFTWARE (PETREL™) — 5 days

Introduction and software discovery:

- Introduction to the Petrel™ interface and its geomodeling workflow.

Sructural modeling:

- Building the fault network.
- Defining the structural grid: Pillar gridding. Volume based modeling.
- Modeling horizons.

Property modeling: data preparation and analysis:

- Checking data distribution.
- Blocking well data to the grid.
- Creating VPCs and trend resources.
- Building variogram models.

Property modeling: deterministic and stochastic methods:

- Comparing kriging options.
- Removing sampling effects.

Property modeling: discrete and continuous property modeling:

- Facies modeling.
- Fault seal analysis.

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- Petrophysical property modeling.

Volumetrics & upscaling:

- Volume calculation.
- Upscaling to the reservoir simulation grid.

Uncertainty analysis:

- Conducting uncertainty analysis.

Sessions

Rueil-Malmaison - From 11/30/2026 to 12/11/2026 **8500 €/HT**

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Training - Refining and Petrochemicals Synergies

IRP-EN-P | Face-to-face only | 2 days

This course provides a complete review of the main refining and petrochemicals specificities, as well as the identification of the possible synergies. It highlights the economic gains achievable from refining-petrochemicals integration

Level

Skilled

Public

Staff from refining and petrochemicals involved in production, planning, procurement, marketing, management control and investment

Objectives

Attendees will be able to implement the following skills:

- Describe the main specificities of the refining and petrochemicals sectors
- Identify the possible synergies between refining and petrochemicals

Pedagogical & technical resources

- Quiz, examples
- Case studies and exercises in team work

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TECHNICAL REVIEW OF REFINING & PETROCHEMICALS — 0.5 day

Main petroleum and petrochemicals products: key product specifications review.
Refining and petrochemicals schemes.
HSE specifications: refining (H2S, etc.), petrochemicals (product instability, etc.).

SYNERGIES BETWEEN REFINING & PETROCHEMICALS — 1 day

Utility exchanges: H2, gas, fuel.
Supply: ethane, LPG, naphtha, atmospheric gasoil, vacuum distillate.

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Product exchanges: pyrolysis gasoline, olefins.
Common treatment of the C4 cuts: BTX (Benzene-Toluene-Xylene) extraction.
Pooling services.

REFINING & PETROCHEMICALS ECONOMICS — 0.5 day

Refining and petrochemical margins and costs.
Location and unit severities effects.
Gains due to synergies.
Case study: economics of a refinery, of a steam cracker and of the integration of both (with some synergies).

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Training - Place and Role of Equipment in Refining and Chemical Processes

ITREQ-EN-P | Face-to-face only | 6 days

This course provides a deep knowledge of the role and operating conditions of specific equipment used in various processing plants as well as a better understanding of process users: their processes, vocabulary, work environment, etc

Level

Awareness

Public

Engineers and/or technicians. Suppliers or subcontractors of the Oil & Gas processing sector or the refining and chemical industry

Objectives

Attendees will be able to implement the following skills:

- Define the role and integration of the selected material in the processes studied
- Identify standard operating conditions
- Identify impacts of changing operating conditions on this equipment

Pedagogical & technical resources

- Interactive course
- The use of 2D/3D photos and videos makes it possible to understand the size of the presented devices and units

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

EXAMPLE OF COURSE CONTENT RELATED TO COMPRESSORS

For each unit, the following items are discussed:

- Role and principle of the process, simplified process flow diagram, role of the compressor in the process.
- Normal operating conditions and impact of various modifications on the operation of the compressor.

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- Particular operating conditions: shutdown, start-up, regeneration of the catalyst, decoking, etc.

COMPRESSORS IN OIL & GAS PROCESSING & TRANSPORTATION — 3 days

Production of natural gas and associated gas: natural production and reinjection compressors.
Secondary oil recovery: gas lift, associated gas reinjection compressors.
Gas transportation by pipe: recompression station.
Gas storage: surface, underground.
LNG production and treatment: conventional units, ssLNG.

COMPRESSORS IN REFINING PROCESSES — 2 days

Initial fractionation of crude oil: overhead gas compressor.
Catalytic reforming: recycle, make-up, recontacting, regeneration compressors.
Hydrorefining: recycle and make-up compressors.
Fluid catalytic cracking (FCC): wet gas compressor and air blower.
Hydrocracking: recycle and make-up compressors.
Alkylation: cryogenic compressor.
Visbreaking: wet gas compressor.
Coker: wet gas compressor.

COMPRESSORS IN THE PETROCHEMICAL/CHEMICALS INDUSTRY — 4 days

Steamcracking: cracked gas and cryogenic compressors.
Commodity polymers: on-purpose propylene production (metathesis, PDH, MTP/MTO...), polyethylene and polypropylene production (gas and liquid phase), ethylene oxide production, styrenics production: transfer, refrigeration or recycle compressors, according to the process scheme.
Ammonia: air compressor, syngas compressor, refrigeration compressor.
Urea: CO2 compressor.
Nitric acid: turbocompressor, single and dual pressure units.
Sulfuric acid: air blower.
Methanol: make-up compressor, syngas compressor, air blower.

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Training - Laboratory Analyses for Oil and Gas Production

LABO-EN-P | **Face-to-face only** | **5 days**

This course provides a comprehensive knowledge and develops practical skills in conducting reliable and safe laboratory analyzes for the Oil & Gas industry

Level
Skilled

Public
Laboratory personnel, operational staff and other professionals (engineers, managerial staff, technical, operator, assistant) interested in laboratory analyzes dedicated to Oil & Gas operations

Objectives
Attendees will be able to implement the following skills:

- Grasp the physical and chemical concepts involved in various analyzes
- Comprehend issues requiring special attention in various analyzes
- Assess the results of an analysis and decide whether to carry out the analysis over again
- Review main Occupational Health and Safety rules within the framework of laboratory activities

Pedagogical & technical resources
Several applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ROLE & RESPONSIBILITIES OF LABORATORY STAFF — 0.25 day

Member of production staff. Equipment yields controls/monitoring.
Final product quality controls/monitoring. Recommendations to improve treatments.

ANALYZES SPECIFIC TO CRUDE OIL — 1.25 days

Specific gravity or density.
Vapor Pressure (Reid VP).
Water content: Basic Sediment & Water (BSW), dean stark distillation.

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Salt content: chlorides content, conductimetry.
Acid components content:

- H2S content (methylene blue).
- H2S and mercaptans by potentiometry.
- Total Acid Number (TAN) of liquid hydrocarbons.

Fluid rheology: pour point, kinematic viscosity, wax content.

ANALYZES SPECIFIC TO GAS — 0.75 day

Gas characterization analyzes:

- Dew point (HC and water).
- Gas composition by Gas Phase Chromatography (GPC).
- Gas specific gravity estimate from composition.

Acid components content:

- H2S content (Dräger), H2S and mercaptans content (potentiometry, iodometry).
- CO2 content (Dräger and acidimetry).

ANALYZES FOR THE FOLLOW-UP OF EFFLUENT TREATMENT OPERATIONS — 1.25 days

Demulsifiers evaluation and selection (bottle tests, field tests).
Quality controls/monitoring of poor and rich Triethyleneglycol (TEG):

- Water content, pH.
- Hydrocarbon content.

Follow-up of equipment performances: water content, residual emulsion.

ANALYZES DONE TO OPTIMIZE ANTICORROSION TREATMENTS — 0.75 day

Deposits and scale analyzes.
Chemical corrosion and bacterial corrosion appraisal.
Recommendations for chemical additives and treatments.

HSE IN LABORATORY ACTIVITIES — 0.75 day

Laboratory facilities design and implementation.
Chemicals management (storage, use...).
Occupational health and safety behavior.

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Training - LNG Processing Engineer

LNGENG-EN-P | Face-to-face only | 60 days

This course provides in-depth technical knowledge of natural gas treatment and liquefaction facilities design and operation necessary to hold rapidly, and very effectively, the position of process engineer, field engineer or technical service engineer

Level

Knowledge

Public

Engineers (particularly recently graduated engineers or engineers in conversion) interested in specialization in gas treatment and liquefied natural gas processing

Objectives

Attendees will be able to implement the following skills:

- Explain the thermodynamics involved in natural gas treatment and liquefaction, especially cryogenic loops
- Explain natural gas processing and liquefaction process
- Analyze operating conditions and basic design of gas treatment and liquefaction plant
- Describe the technology of static equipment and rotating machinery used in LNG plants
- Identify the main risks related to gas treatment and liquefaction and efficiently contribute to safety engineering studies

Pedagogical & technical resources

- Highly interactive training with industry-specialist lecturers
- Multiple teamwork sessions and industrial case studies
- Practice on dynamic simulator
- Numerous process simulation exercises using HYSYS™ or PRO/II™ software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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THERMODYNAMICS APPLIED TO WELL EFFLUENT PROCESSING — 5 days

Well effluent. Ideal gas and real fluid behavior. Gas compression and expansion. Liquid-vapor equilibrium of pure components and mixtures. Mixture separation. HYSYS™ or PRO/II™ simulation: phase envelope of well effluents, sales gas, LNG. Fundamentals of distillation. HYSYS™ or PRO/II™ simulation: propane cryogenic loop.

GAS PROCESSING & CONDITIONING — 5 days

Commercial specifications for natural gas. Need for gas field processing. Gas hydrates and moisture content of natural gas. Dehydration process: TEG units and molecular sieves. Sweetening: amines, membranes. NGL recovery and fractionation. HYSYS™ or PRO/II™ simulation: associated gas and gas condensate sweetening, dehydration, NGL recovery and compression.

DYNAMIC SIMULATION OF GAS PROCESSING FACILITIES — 5 days

During this week, case study and exercises are performed using a DCS replica in order to allow the participants to understand process dynamics. Hydrates detection and inhibition in gathering network. Gas processing. Gas dehydration: impact of operating conditions. Multistage gas compression and export: study of operating parameters.

LIQUEFIED NATURAL GAS — 5 days

The LNG chain. Specific properties of LNG. Liquefaction processes. Regazification processes. LNG storage, loading/offloading and transport. Technology of LNG-specific equipment.

LNG PROCESS SIMULATION — 5 days

During this week, case study and exercises are performed using HYSYS™ or PRO/II™ software in order to allow the participants to design and optimize liquefaction processes: gas field treatment (separators, dehydration, compression); NGL fractionation and stabilization; simulation of a cascade liquefaction process, of a C3MR liquefaction process, of a turbo-expander based liquefaction process; integration of the liquefaction processes with the NGL recovery/fractionation; comparison of the efficiency of the processes versus load and conditions.

PIPING SYSTEMS & PROCESS EQUIPMENT: TECHNOLOGY & SIZING — 5 days

Piping and valves. Metallurgy. Corrosion. Cathodic protection. Pressure relief systems. PSV's and flare network. Storage equipment. Thermal equipment and cryogenic equipment. Pressure vessels: technology and selection criteria, internals, elements of calculation.

INSTRUMENTATION, PROCESS CONTROL & SCHEMATIZATION — 5 days

Field instrumentation: sensors, transmitters, control valves, ON/OFF valves. Controllers; control loop structures. Study of controller parameters and control loop structures on dynamic simulator. Distributed Control System (DCS). Safety Instrumented Systems (SIS): ESD, HIPS, Fire & Gas System. Process schematization: reading and drawing of Block Flow Diagrams (BFD), Process Flow Diagrams (PFD) and Piping & Instrumentation Diagrams (P&ID).

PUMPS & COMPRESSORS — 5 days

Fundamentals of hydraulic circuits and gas compression. Operating principles, technology, selection criteria, performances and operating conditions of centrifugal and volumetric pumps as well as centrifugal and reciprocating compressors.

GAS TURBINES - ELECTRICAL GENERATION — 5 days

Upon customer request, this module can be tuned to team generation and team turbines operations. Gas turbines: equipment technology, operating conditions, performances, operation. Turbo-expander: technology, operation. Electrical power generation. Electrical power distribution network and equipment.

LNG - SPECIFIC SAFETY ENGINEERING — 5 days

LNG specific hazards: stratification/roll-over, sloshing, LNG clouds ignition, asphyxiation risks, cryogenic liquids

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jets, piping behavior. LNG spillage control at design stage and in operation. LNG clouds control in operation. LNG fires control at design stage and in operation. Main safety engineering studies: HAZID and HAZOP workflow and application; plant layout case study; QRA - Consequence analysis methodology.

HSE IN OPERATIONS & MAINTENANCE WORKS — 5 days

LNG plant operations. Risk in normal process operations. Risk assessment tools. Job safety analysis. Safe isolation of plant and equipment. HSE in maintenance & construction works. Permit to work system. Organizational framework. Human factors.

CASE STUDY BASED ON LNG PLANT P&IDS & JURY — 5 days

During this week, participants will work in team to analyze LNG plant P&ID's and present the results of their analysis to a jury: this 5-day teamwork project is a real case study based on actual data. Participants are coached throughout the project to produce the required deliverables, which are to be presented on the last day (jury): process operating parameters, process control loops and safety loops; operating philosophy; materials and equipment selection.

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Training - Liquefied Natural Gas (LNG)

LNG-EN-P | Face-to-face only | 5 days

This course provides a comprehensive technical and economic review of the Liquefied Natural Gas industry

Level

Knowledge

Public

Professionals involved or interested in the LNG industry: technical and managerial staff in the LNG industry, equipment providers, personnel from engineering companies, etc

Objectives

Attendees will be able to implement the following skills:

- define the main LNG physical properties and associated hazards
- describe the main liquefaction processes' operating principles
- understand the main LNG equipment details
- acquire an understanding of the new trends and evolving technologies
- develop quantitative LNG Project valuation skills

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications, illustrations and videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

THE LNG VALUE CHAIN — 0.25 day

Introduction to the LNG industry
The LNG supply chain: Order of magnitude and trends, Location of main plants worldwide.
Types of LNG plants: Base load LNG plants. Peak shaving LNG plants. Small LNG plants for LNG fueled vehicles.
Receiving terminals. Regasification techniques.

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LNG SPECIFIC PROPERTIES & ASSOCIATED HAZARDS — 0.25 day

Physical properties: liquid-vapor equilibrium, density, heat of vaporization, heat of combustion
Safety aspects: flash point, fire point, auto-ignition point, minimum spark energy, flammability limits, deflagration.
LNG vaporization, Rapid Phase Transition (RPT), radiation levels, stratification/roll-over, sloshing, LNG clouds ignition.
Hazards: Asphyxiation risks, cryogenic liquids jets, piping behavior.
Cryogenic personnel protection items.

LNG HAZARD PREVENTION & MITIGATION MEASURES — 0.25 day

LNG spillage control at design stage and in operation.
LNG clouds control in operation.
Fire control measures at design and operational stages.
Emergency response and risk management.

LIQUEFACTION & REGASIFICATION PROCESSES — 1 day

Natural Gas conditioning and Feed pretreatment: sweetening, dehydration, NGL extraction, Hg and aromatics removal.
Liquefaction processes: pure component refrigerants, mixed refrigerants.
Peak shaving simplified scheme.
Regasification process and Floating Storage Regasification Units (FSRU).
Small Scale LNG, processes, characteristics and layouts.

LNG STORAGE, LOADING/OFFLOADING & TRANSPORT — 0.75 day

LNG tanks: single, double, or full containment.
Jetty head, jetty trestle, and harbor operations.
LNG carriers: technology, cargo operations, safety systems.

TECHNOLOGY OF LNG SPECIFIC EQUIPMENT — 1 day

Various Cryogenic compressors, drivers and possible configurations
LNG cryogenic heat exchangers: spiral wound, aluminum brazed.
LNG Vaporizers: Open Rack Vaporizers (ORV), Submerged Combustion Vaporizers (SCV), Ambient air vaporizers (AAV).
Safety and environmental aspects.
Submerged LNG pumps: in-tank, retractable, cargo pumps, HP canned send out pumps.
Liquid cryogenic turbo-expanders, cryogenic valves.

KEY PLANT RELIABILITY & OPERATION PARAMETERS — 0.5 day

Reliability and Maintenance in LNG plants design.
Operational aspects of LNG plants.

LNG TRENDS - RESEARCH & NEW DEVELOPMENTS — 0.25 day

Latest trends, innovations, concept advancements and future developments in LNG, FLNG and FRSU.

LNG ECONOMIC ASPECTS — 0.75 day

Global gas markets: reserves, production, demand, and trade.
LNG Projects Economics case study / Workshop (Hands-on discounted cash flow based on Equipment estimation, Freight Calculations...)
LNG contracts, learn the specifics, pricing, shipping contracts.
Market trends and outlook.

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Sessions

Rueil-Malmaison - From 11/16/2026 to 11/20/2026 **5550 €/HT**

Rueil-Malmaison - From 11/15/2027 to 11/19/2027 **5680 €/HT**

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Training - LNG Process Simulation

LNGSIM-EN-P | Face-to-face only | 5 days

This course aims to acquire a comprehensive knowledge and practical know-how in the simulation of natural gas pre-treatment and liquefaction processes, with an emphasis on condensate recovery, fractionation and integration with the liquefaction process

Level

Skilled

Public

Process design engineers involved in conceptual design, basic or detailed engineering of LNG plants and familiar with process similation

Objectives

Attendees will be able to implement the following skills:

- Assess various problems that can be induced by unwanted elements and compounds in gas streams
- Design, explain the operation and operating parameters of gas condensate recovery systems and natural gas liquefaction processes
- Perform steady-state simulations with PRO/II™ or HYSYS™, model set-ups, and simulate gas processing and liquefaction processes
- Optimize process operating conditions, compare processes performances, evaluate power requirements, size equipment...
- Check plant performance under different operating conditions, implement the optimal process scheme

Pedagogical & technical resources

- Highly interactive training course delivered by industry experts and adapted to participants' experience
- Numerous simulation and case studies performed using PRO/II™ or HYSYS™
- Simulation of DMR, MFC, N2/dual-expander & SMR processes can be performed in classroom or as e-learning upon request

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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NEED FOR GAS FIELD PROCESSING - QUALITY REQUIREMENTS — 0.25 day

Review of main concepts and products within the gas/condensate chain.
Undesired constituents for storage, transport, or end use of natural gas.
Different specifications and quality requirements for natural gas: sales gas specifications, reach/lean gas specifications.
Required treatments and overview of gas processing.
Examples of compositions of commercialized natural gases.

STEADY-STATE PRO/II™ OR HYSYS™ SIMULATION CASE STUDIES — 0.75 day

Equations Of State (EOS); uses, examples, selection:

- Reservoir fluids phase envelope.
- Flash separation of multicomponent mixtures.
- Phase envelope of gases versus composition.
- GHV and WI calculation using PRO/II™ or HYSYS™.
- Construction of simulation reports.

CONDENSATE RECOVERY, FRACTIONATION & REFRIGERANT MAKE-UP — 0.5 day

Condensate fractionation: choice of the operating conditions.
Quality requirements for methane, ethane, propane and butane used for MR make-up.
Storage of methane, ethane, propane and butane for make-up.
Nitrogen requirements for make-up.

SIMULATION OF CONDENSATE RECOVERY & FRACTIONATION USING PRO/II™ OR HYSYS™ — 0.5 day

Selection of thermodynamics packages.
Simulation of a condensate fractionation and stabilization process.

CASCADE PROCESS OPERATING CONDITIONS & SIMULATION — 0.5 day

Process diagram and operating parameters.
Simulation of the liquefaction process: optimization of the operating conditions, compressors sizing.

COMPARISON OF THE MAIN MIXED REFRIGERANTS LIQUEFACTION PROCESSES — 0.5 day

Fields of application of liquefaction processes.
Comparison with cascade process and turbo expander based process.

LIQUEFACTION WITH C3 - MIXED REFRIGERANTS - OPERATING CONDITIONS & SIMULATION — 1 day

Process diagram and operating parameters.
Simulation of the liquefaction process: optimization of the operating conditions, compressors sizing.
Optimization of MR composition.

LIQUEFACTION WITH 2 MIXED REFRIGERANTS - OPERATING CONDITIONS & SIMULATION — 0.5 day

Process diagram and operating parameters.
Simulation of the liquefaction process: optimization of the operating conditions, compressors sizing.
Optimization of MR composition.

LIQUEFACTION PROCESSES PERFORMANCES COMPARISON — 0.5 day

Heat and mass balance for each process.

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Comparison of power requirements for the different processes.

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Training - Quantitative Well Log Analysis

LOGADV-EN-P | Face-to-face only | 5 days

This course provides participants with some experience in qualitative log interpretation

Level
Skilled

Public
Geoscientists and technicians having an experience in qualitative log interpretation and willing to perform quantitative reservoir evaluation

Objectives
Attendees will be able to implement the following skills:

- Perform sound quality-control and environmental correction of logs, determine Rt, Rxo, Di
- Evaluate shale content of reservoirs, apply shale and hydrocarbon corrections
- Perform quantitative log interpretation in case of water and oil based mud, determine porosity, permeability, net sand, net reservoir and net pay characteristics

Pedagogical & technical resources
Hand computations followed by petrophysical software sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PREPARATION FOR QUANTITATIVE LOG ANALYSIS — 1 day

Petrophysical concepts and relationships.
Quality control of the data.
Determination of geological formations and reservoirs - Zonations.
Environmental corrections of logs. Determination of Rt, Rxo, Di.
Case studies (water and oil based muds).

INTERPRETATION OF CLEAN FORMATIONS — 1 day

Determination of fluid contacts (WOC, GOC).

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Determination of matrix and fluid parameters, Rw (SP, Ratio, Rwa).
Determination of lithology, porosity, fluid type, water and hydrocarbon saturations.
Cross plots techniques: N-D-S, Pe-RHOB, K-Th, etc.
Case studies.

QUANTITATIVE LOG INTERPRETATION OF SHALY FORMATIONS (DETERMINISTIC APPROACH) — 2.5 days

Influence of shale on logging tool response. Introduction to complex lithology - D-N cross-plot.
Determination of shale parameters, shale content Vsh and effective porosity.
Hydrocarbon effects on logs and hydrocarbon correction.
Determination of water and hydrocarbon saturations (various equations).
Comparison of porosity and permeability results to core data (PHI-K relationship and SCAL).
Determination of net sand, net reservoir and net pay thicknesses and associated characteristics (Vsh, H, Phie, So).
Case studies: integration & interpretation of pressure tests and NMR data, if available.
Cross-section between wells and comparison of interpretation results.

OTHER INTERPRETATION METHODS — 0.5 day

Introduction to the multi-mineral model and general optimization method.
Case study.

Sessions

Rueil-Malmaison - From 11/23/2026 to 11/27/2026 — **3650 €/HT**

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Training - Supply Chain Management

LOG-EN-P | Face-to-face only | 3 days

This training provides a deeper knowledge of all technical, economic, administrative and environmental constraints of the petroleum logistics from the refinery to the gas station to optimize it more effectively

Level

Skilled

Public

All personnel in the petroleum industries, distributors, large consumers concerned with supply logistics issues, transportation and storage

Objectives

Attendees will be able to implement the following skills:

- Set up a logistics plan and establish different modes of supply
- Establish the characteristics between the various tools of storage and transportation
- Analyze the economic aspects of a supply chain

Pedagogical & technical resources

Case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION & PRINCIPLES

Definition: what is logistics? What is a supply chain?
Principles of the distribution of petroleum products.
Review of activities, supply chain link production to consumers.
Definition of actual tools.
Implementation of supply chain schema.

STORAGE MANAGEMENT

Factors of entry points (refiners and import terminals).

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Factor of exit points (to consumers).
“Pull” and “push” modes.
Basic tool for stock management.

TECHNICAL ASPECTS OF STORAGE

Review of the different storages (above ground and underground).
Operation equipment and control.
Stocks measurements.
Losses (tank breathing, product movement, loss control).
Flow measurements. Safety equipment.

ECONOMICS OF STORAGE & TRANSPORT OPERATIONS

Cost notion. Storage size. Investments. Maintenance.
Cost breakdown for mixed products and petroleum products.
Maintenance policy and costs. Distribution cost pricing policy.

SECURITY STORAGES

Why security storages?
IEA mission. Example in different countries in the world.
Review of technical problems due to long term storage.

SHIPPING

General features.
The Market and its players-fixing of the freight rate (Worldscale).
Chartering contracts (voyage charter, COA, time charter...).
Risk control and environmental protection.

SUPPLY CHAIN DESIGN & METHODOLOGICAL APPROACH

Analysis of the Industry. Organization analysis. Process analysis. Location analysis.
Operational optimization. Status and alternatives’ analysis.
Key Performance Indicators.
Benchmarking context.

CASE STUDY

Case study based on an actual situation and containing applications of most of the main principles explained.

CASE STUDIES (TREATED ALL ALONG THE COURSE)

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Training - Well Logging and Qualitative Log Interpretation

LOGF-EN-P | Face-to-face only | 5 days

This course provides an overview of main logging tools and proposes an insight into fundamental well log interpretation for reservoir identification and characterization

Level

Knowledge

Public

Geoscientists and other E&P technicians and engineers, interested in wireline log acquisition and well-log interpretation

Objectives

Attendees will be able to implement the following skills:

- Acquire the concepts of log interpretation (Archie formula, invasion)
- Review mud logging, coring and wireline logging techniques
- Perform a quick-look interpretation to characterize reservoirs: fluid contacts, lithology, porosity, saturation

Pedagogical & technical resources

Interactive presentations and exercises to build a lithology and fluid column

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC INTERPRETATION CONCEPTS & WIRELINE LOG RECORDING — 1 day

Foundational concepts. Reservoir petrophysics (lithology, porosity, resistivity, saturation) and fluid properties.
Environment of measurement (borehole, invasion profile) and related parameters.
Fundamental equations (Archie formula) for log interpretation in clean formations.
Mud logging, measurements during drilling, coring and wireline logging techniques. Applications.
Well logs examples.

REVIEW OF LOG MEASUREMENTS & APPLICATIONS — 1.25 days

Wireline logging operations and wireline logs.

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Logging-While-Drilling techniques and LWD logs.
Well logs: header, calibration, parameters, repeat section, main log.
Wireline logging tools: principle and applications, limitations, calibration, environmental corrections and quality control:

- Caliper, gamma ray and GR spectrometry, Spontaneous Potential.
- Resistivity (induction, laterolog) and micro-resistivity measurements.
- Porosity and lithology measurements: nuclear (litho-density, neutron) and acoustic logging (sonic).

"QUICK-LOOK" INTERPRETATION — 2.5 days

Qualitative well-log interpretation:

- Log responses in most common geological formations.
- Identification of reservoirs and fluid contacts (overlay technique: water- and oil-based mud cases).
- Hydrocarbon effect on density and neutron logs.
- Determination of water resistivity Rw (SP, Ratio, Rwa), formation resistivity (Rt, Rxo) and flushed zone diameter.
- Determination of lithology, porosity, water and hydrocarbon types and saturations.
- Cross-plot techniques with density, neutron, sonic and other logs (Pe, K, Th, etc.).
- Shale effects on logs: introduction to shaly and complex lithology formations.

PRESSURE MEASUREMENTS & FLUID SAMPLING — 0.25 day

Pressure measurements and fluid sampling: operation and applications.
Pressure analysis: determination of fluid contacts, fluid gradient and fluid density.

NMR, DIPMETER & BOREHOLE IMAGING TECHNIQUES — 0.25 day

NMR log (Nuclear Magnetic Resonance): principle and applications.
Dipmeter and borehole imaging tools: principle and applications.

Sessions

Rueil-Malmaison - From 09/21/2026 to 09/25/2026 — **3650 €/HT**

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Training - Data Acquisition during Drilling Operations

LOGFI-EN-P

Face-to-face only

5 days

This 5-day course will be run over 4 days as there are public holidays. The entire program will be given, but the days will be extended

This course provides a thorough, practical knowledge of openhole logging, mud logging and coring

Level

Skilled

Public

Young engineers and supervisors, tool pushers, with some experience in drilling

Objectives

Attendees will be able to implement the following skills:

- Understand, assess and interpret measurements made while drilling
- Learn about techniques and equipment used for coring during drilling operations
- Understand how to prevent kicks and drilling problems with mud logging data analysis
- Understand wireline and LWD technology with regard to log data analysis
- Appreciate the geoscientists' work in a quick-look log analysis at the rig site

Pedagogical & technical resources

- Alternation between theoretical contributions and case studies, with a large part left to the participants' questions. Exercises in working groups
- Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course
- Case studies
- Numerous illustrations and videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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MUD LOGGING

Tasks of various professionals at the drilling site.
Main documents carried out.
Cuttings (sampling, cleaning and analysis).
Mechanical parameters (WOH, WOB, RPM, Torque, ROP) & hydraulic parameters (SPP, Flows, Pits and mud characteristics). Physical principles of sensors used on well site.
Detection and evaluation of Oil & Gas shows while drilling.
Detection of abnormal pressures.
Detection of drilling problems: kicks, losses, stucking...
Carry out a section of geological log.
Case studies.

WELL LOGGING & LOGGING WHILE DRILLING

Definition of basic concepts used in log interpretation.
Wireline logging:

- Well site setup and log records operation.
- Main logging tools and applications (caliper, GR, SP, resistivity, nuclear, acoustic).
- Quick-look interpretation: reservoir identification and characterization (lithology, porosity, fluid types, saturation).
- Case study.

Logging while drilling:

- Main LWD sensors and measurements (directional, resistivity, nuclear, acoustic, pressure...).
- Applications for directional drilling, geosteering, formation evaluation, predictive pressure.

Pressure measurement concepts.
Different technics for sampling with wireline and LWD tools.
Prevention actions to handle sampling operations.

CORING OPERATIONS

Data collected with coring.
Conventional coring operation.
Cores bits and drilling strings for coring operations.
Advanced coring technics: turbo-coring, soft formations coring, gel coring.
Oriented coring system.
Sidewall coring.
Storage and handling process for cores during surface recovery: cores cutting, preliminary well site analysis, storaging of cores.

KNOWLEDGE ASSESSMENT

Sessions

Pau - From 03/30/2027 to 04/02/2027 **3890 €/HT**

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Training - E&P Project Logistics Management

LOGP-EN-P | Face-to-face only | 5 days

This course aims to provide an overall view of the logistics issues of Oil & Gas upstream projects

Level
Skilled

Public
Engineers or technicians who will hold positions in an E&P logistics organization

Objectives
Attendees will be able to implement the following skills:

- Identify the stakes and challenges related to the development of an Oil & Gas field
- Explain the differences between road, sea and air transport
- Deal with HSE challenges

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TRANSPORT — 2.5 days

Road transport: characteristics of road transportation; transport of dangerous goods; risks, contracts, operation, maintenance; referential; infrastructure.
Air transport: aircraft, international referential.
Sea transport: vessels, marine inspection, port facilities, transportation of personnel, tanker loading, rig move, marine operations, weather.

LOGISTICS — 2.5 days

Logistics base management: base concept, organization and sizing, material management, base operations.
Warehouse management: warehouse concept, warehouse organization, transit areas, shelter, workshop, lifting and handling operations.
Industrial risks.
Waste management.

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Training - Maintenance Superintendent

MAINSI-EN-P | **Face-to-face only** | **61 days**

This course develops managerial and communication skills while providing an in-depth technical knowledge stretching over a wide range of issues and advanced topics in relation to the maintenance and operation of Oil & Gas treatment facilities. This certifying training deals in details with effluent processing, HSE, equipment maintenance and management

Level

Skilled

Public

Professionals with a significant experience in maintenance of Oil & Gas production facilities, called on to hold the position of maintenance superintendent

Objectives

Attendees will be able to implement the following skills:

- Describe the Oil & Gas production chain, from reservoir to offloading facilities
- Explain technology, working principle, operation and maintenance of main equipment in Oil & Gas facilities
- Anticipate production constraints and their consequences on maintenance
- Describe HSE management rules and responsibilities
- Use adapted work methods and communication skills
- Prepare and manage effectively a global maintenance plan

Pedagogical & technical resources

- Several applications and illustrations
- Several teamwork sessions
- Several tutorials with equipment in a fully equipped workshop

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION — 1 day

Welcome and program overview. Entry test. Units. Dimensions.

DOWNHOLE PRODUCTION - WELL PERFORMANCE - PRODUCTION FUNDAMENTALS — 5 days

Fundamentals of reservoir engineering. Well testing. Fundamentals of drilling, completion and well servicing. Artificial lift (pumping, gas lift...) and well performance. Effluent behavior. Fundamentals of thermodynamics. Specifications. HSE management.

OIL, WATER & GAS PROCESSING — 5 days

Oil processing: required specifications; stabilization; dehydration, desalting. Production and injection water treatment: why a water treatment; expected qualities and required treatments; operating conditions. Gas processing: required specifications; dehydration; hydrates, consequences and treatments; Natural Gas Liquids recovery. Work on study cases to detail processes and concerns.

OFFSHORE DEVELOPMENTS, FLOW ASSURANCE — 2 days

Offshore developments challenges, technology and techniques and production constraints. Fixed and floating production structures. Prevention of deposits in flowlines. Multi-phase flows in flowlines.

TERMINAL, FSO & FPSO — 1 day

Overview of oil terminals. FSO & FPSO technologies. Metering of oil quantities.

BEHAVIORAL MANAGEMENT — 5 days

Teamwork management, written and oral communication. Active listening and communication tools. Team cohesion and stress management. Problems analysis and investigation: tools and behaviors. How to better analyze and know oneself.

INSTRUMENTATION & PROCESS CONTROL - ELECTRICITY — 5 days

Instrumentation and process control: functional blocks, symbolization; pneumatic, electrical and digital technologies; measurements, sensors, security equipment; control equipment, actuators; controllers and control loops; Distributed Control System (DCS): architecture, connections; Safety Instrumented Systems (SIS): HIPS, ESD, EDP, FGS. Electricity: generation (turbines, alternators, monitoring, troubleshooting); distribution (HT-BT networks, power supply, stability, constituents, cabinets, transformers, batteries, isolation, protections).

ROTATING MACHINERY (IN MECHANICAL WORKSHOP) — 10 days

Pumps: pumping prerequisites: pressure, flowrate, head; centrifugal pumps: types, technology, auxiliaries, performances; volumetric pumps. Compressors: compression prerequisites: technology, auxiliaries, practical laws; centrifugal compressors: rotor, stator, bearings, shafts, seals balance; reciprocating compressors: frame, cylinders, pistons and rings, bearings, lubrication, cooling. Gas turbines: operating principles, compression, combustion, expansion, performances; technologies: compressor, combustion chamber, turbine, internal cooling; auxiliaries. HSE concerns. Technology and maintenance of the elements: bearings (ball, hydrodynamics, magnetic); shaft outlet sealing systems: braided and mechanical seals; rotors and shafts: balancing, geometric controls; coupling and alignments: types, stresses; diagnostics from process, vibration or oil analysis data; wear and rupture phenomena.

CORROSION, INSPECTION & INTEGRITY — 2 days

Corrosion mechanisms. Types of corrosions in the Oil & Gas industry. Corrosion prevention and monitoring, fundamentals of inspection.

MAINTENANCE MANAGEMENT - EQUIPMENT AVAILABILITY CONTROL — 5 days

Maintenance policy and objectives. Reliability process implementation and follow-up. Reliability analysis and improvement. Maintenance costs and failure costs. Subcontracting, shutdown management, progress plans.

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HSE RISKS & MANAGEMENT — 15 days

HSE risks, flammability, overpressure systems: PSV, flare and flare network, closed and open drains... Safety in operation: use of utilities, degassing/inerting, confined space entry, start-up & shutdown. Safety during construction and maintenance works: lifting & rigging, work at height, electrical safety... Work permit system. SIMultaneous OPerationS (SIMOPS) management... Safety engineering: HAZID, HAZOP, layout optimization and identification of major accidents. Risks matrix... Safety systems: HIPS, ESD, EDP, F&G, USS. Safety logic diagrams. Human factors. Opersafe: philosophy and methodology. Incident analysis and reporting. Root cause analysis.

REVISIONS - ORAL ASSESSMENT — 2 days

Sessions

Pau - From 09/15/2026 to 12/08/2026 — **45840 €/HT**

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Training - Maintenance Supervisor

MAINSUP-EN-P | **Face-to-face only** | **35 days**

This program aims to develop the knowledge and skills needed to perform the supervision and maintenance of equipment, systems and networks used in Oil & Gas production facilities. It includes machines mechanical aspects, wears, rupture, lubrication problems, the control and maintenance of instrumented systems, the generation, distribution and use of electrical power and provides a thorough understanding of the associated HSE considerations

Level

Skilled

Public

All people working for the Oil & Gas production, transport or storage facilities with experience in the maintenance area:

Objectives

Attendees will be able to implement the following skills:

- Know the physical phenomena involved in the Oil & Gas treatments
- Understand the fundamentals of maintenance
- Be familiar with the technology and operation of static equipment and rotating machinery used in the Oil & Gas production facilities and know the different elements concerned by maintenance and inspection policies
- Know field instrumentation technology, understand DCS architecture and safety logics, be familiar with the calibration and synchronization procedures and be aware of the importance of measurement quality
- Be able to analyze and monitor electrical equipment and electrical networks and know how to identify and mitigate associated electrical hazard
- Understand the risks associated to products, equipment and operations and plan adequate resources to carry out activities adopting industry best practices

Pedagogical & technical resources

- Lecturing by industry specialists
- Team work exercises
- Course sessions in relation with practical exercises and case studies
- Mechanical workshops

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF OIL & GAS PRODUCTION — 5 days

Fundamentals of chemistry: atoms, molecules, atomic weight, molecular weight.
Hydrocarbons types and main characteristics.
Applied physics: force, work and energy, temperature, thermal energy and heat transfer, pressure, hydrostatics, hydrodynamics and friction losses.
Well effluent: composition, types and characterization parameters.
Liquid-vapor equilibrium of pure components and mixtures.
Well effluents behavior. Need for effluents field processing. Specifications.

FUNDAMENTALS OF MECHANICAL MAINTENANCE — 5 days

Technical representation of parts and simple mechanical systems: technical drawing and vocabulary (2D views, projections, section and cut-away views, perspectives); dimensioning, tolerances, main adjustments, surface conditions; tools of metrology, performances and rules of use.
Elements of construction: metals, alloys, plastics and composites, operating and maintenance rules; screwed, bolted, welded and stuck constructions; bearings, seals. Pipe, valves and main line accessories.
Elements of repair: surface treatments and coatings; overlay welding and reconstitution; test and requalification.

MAINTENANCE & INSPECTION OF ROTATING MACHINERY (IN MECHANICAL WORKSHOP) — 10 days

General characteristics and technology of rotating machines: reliability, technological descriptions, operating parameters, characteristics; effect of external process parameters: composition of the products, modified suction or discharge conditions; stresses in normal operation and in abnormal conditions, operating limits; influence on the machine lifespan, general operating rules; effect on reliability, associated risks.
Technology and maintenance of the common elements: ball bearings, hydrodynamic bearings, magnetic bearings; sealing systems; balancing: imbalance, eccentricity, balancing class; couplings and alignments; lubrication.
Inspection and failure forecast: diagnosis, functioning point, checking the performance, detection of failure by vibrations and oil analysis; fundamentals of inspection; friction and materials, roughness, surface conditions, fretting corrosion; main rupture modes (stress, fatigue, impact, creep...).

INSTRUMENTATION, PROCESS CONTROL & SAFETY INSTRUMENTED SYSTEMS — 5 days

Sensors and transmitters: measurement of operating parameters, measurement uncertainties; physical principles, technologies, units of measurement, local reading/transmission; transmitter technology; preventive maintenance.
Controls and actuators: control valves (technology, types of valves, characteristic curves, safety position); positioners: principle of operation, types; ON/OFF valves: types, technology. Special ON/OFF valves: SDV, ESDV, BDV.
Controllers and control loop structures: behavior of a P&ID controller: operating point, gain, interactions...; control loops: simple, cascade and split-range.
Distributed Control Systems (DCS): architecture, security/redundancy; alarms, history, newspapers.
Safety Instrumented Systems (SIS): safety loop and safety functions, Safety Integrity Level; high Integrity Protection Systems (HIPS), Emergency Shutdown (ESD), Emergency DePressurization (EDP); Fire & Gas system (F&G).

ELECTRICAL EQUIPMENT & POWER DISTRIBUTION NETWORK — 5 days

Electricity generation: gas turbine, alternator; monitoring and maintenance of the equipment, troubleshooting.

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Electrical distribution and networks: HV and LV networks, architectures and equipment, distribution philosophy, differential protection; switchboards and switchgears, transformers, circuit breakers, protection and isolation elements, batteries; equipotential networks, earthing.
Electric motors: functioning and operation of AC and DC electric motors, windings coupling, adjustment to site conditions; routine monitoring, troubleshooting, starting systems, variable speed systems, maintenance.
Protection against electrical risks (as per the UTE C-18 510): hazards, voltage levels, safe approach distances, related safety devices; effects and consequences of the electrical risks, protections.
Hazardous areas and ATEX standards: definition of a hazardous area, ATEX specifications and standards; impact for the organization (certification, accreditation).

HSE IN MAINTENANCE & CONSTRUCTION ACTIVITIES — 5 days

Operations and HSE.
Risk assessment tools. Job safety analysis.
Permit to work system procedure.
Hazard identification and risk assessment of maintenance and construction works.
Environmental management in maintenance and construction operations.
Organizational framework. Human factors.
Management of contractors.
Audits. Means of improving the HSE performance.

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Training - Main Polymers PE/PP/PS

MAIPOLY-EN-P | Face-to-face only | 5 days

To provide comprehensive information on polymers and polymerization processes used to produce polyethylenes, polypropylenes and polystyrene

Level
Skilled

Public
Engineers and technical staff interested in the manufacturing of commodity polymers

Objectives
Attendees will be able to implement the following skills:

- Understand the global technical and economical structure of commodity polymers, by far the biggest outlet of petrochemistry
- Master the link between product slate and process selection in function of company marketing strategy
- Know the main industrial commodity polymers processes available for licensing, and their main characteristics
- Be aware of the main industrial safety and operational problems

Pedagogical & technical resources
Applications and case studies treated in small groups, based on typical situations encountered in the normal or unsettled operation of these units

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MAJOR POLYMERS — 0.5 day

Various polymer families: commodities, engineering, high performance polymers.
History of polyethylene development.
History of polypropylene development, the youngest of all commodity polymers. Various types of grades (homo, block, random, isotactic, syndiotactic, atactic...); their main applications.
Project management in petrochemical industry. Patent strategy. Staging of projects Order of magnitude of

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investment costs.
Fixed and variable cost for site production and outside logistics.
Polymer pricing mechanisms. Notion of economical spread. Explanations of the causes of polymers wide price fluctuations.

CATALYTIC SYSTEMS USED FOR POLYOLEFINS PRODUCTION — 0.5 day

Review of the various types of catalytic systems for polyolefins.
Mass and heat transfer in the heterophasic polymerization of polyolefins.
Multigrain model of the growing particles and variations around this model.

IMPLEMENTATION OF POLYMERIZATION - MAIN POLYETHYLENE & POLYPROPYLENE PROCESSES — 1 day

Techniques implemented in polymers production: solution, bulk, emulsion, suspension or slurry, gas phase. Advantages and drawbacks of these techniques, consequences for process implementation.
Main processes involved in production of polyethylene and polypropylene. Basic schemes and average operating conditions. Influence of operating parameters (temperature, pressure, reactants proportion) on product quality.

POLYETHYLENES - POLYPROPYLENES & OTHER COMMODITY POLYMERS — 2.5 days

General presentation of high pressure and low pressure polyethylene processes, with the various types of polymers grades they can produce. Low, medium, high, ultra-low density...; narrow, broad molecular weight distribution; low, high melt indexes...
Main applications per family of grades.
High pressure processes. Heat transfer in reactors and conversion rate. Comparison of autoclave, tubular mono-injection, tubular multiple injection reactors; consequences on product quality. Specific equipment technology used in HPPE (hypercompressors, letdown valve...).
Safety risks associated with ethylene decomposition.
Main low pressure catalytic processes. Main characteristics of catalyst and reactor types. Which market do they serve? Announced developments.
Various polymerization processes available for polypropylene production (gas phase, loop, liquid pool...). Staged polymerization for broad molecular weight distribution and impact copolymers. New development with single reactor double reaction zone.
Polymer finishing. Extrusion. Storage. Logistics. Supply chain.
Main safety issues. Catalyst killing system in case of emergency.

POLYSTYRENE PROCESSES — 0.5 day

Main design and operation characteristics.
How to treat run-away in case of thermal initiation.

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Training - Engineering Studies during Project

MANEI-EN-P | Face-to-face only | 5 days

Technical understanding and sequencing of engineering studies

Level

Knowledge

Public

Personnel of contractors and engineering firms involved in the design phases of projects

Objectives

Attendees will be able to implement the following skills:

- List deliverables by study phase, for major disciplines
- Identify audit elements to ensure proper design and interface management
- Provide perennial elements to assess the consequences of a change, prior to its integration into the project

Pedagogical & technical resources

- Examples and diagrams from oil & gas projects, discussed in the form of exercises
- Mini-project offering practical applications for different engineering disciplines

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

UNDERSTANDING OF PROJECT ORGANIZATION — 0.5 day

Different types of project: size, Greenfield vs. brownfield projects.
Project structure. Main project phases. Design studies scheduling.
Overview of design studies, from pre-project to detailed engineering phase

ROLE OF ENGINEERING IN A PROJECT — 1 day

Scope of works (SOW) of the engineering activities and basis of design (BOD).
Roles of contractors and subcontractors.
Its missions: studies, procurement, construction, project management. Identification of deliverables by phases.

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Conduct of studies on a project. Document management/validation (engineering, customer, vendors, subcontractors).

MAIN DELIVERIES & DISCIPLINE TASKS — 2.5 days

Analysis of the study basis. Applicable codes and standards. Kick off meeting.
Identification of tasks and deliverables during the study phases until the start of the purchasing process.
Detailed review of deliverables for the different engineering disciplines: process, health, safety and environment, layout, piping, materials/corrosion, equipment, instrumentation and automation, civil engineering/structures - Naval architecture/weight control for offshore project.
Integration of supplier documents in the study process. Management of interfaces between the different disciplines.
Management of study subcontracting.

REVIEWS & OPTIMIZATION — 0.5 day

Most used review methods: HAZID, HAZOP. Design reviews, 3D model review.
Optimization: energy efficiency review. Value engineering.
Evaluation of alternatives and optimal decision-making.

KEYS TO SUCCESS — 0.5 day

Interfaces management, Coordination between engineering, procurement and construction activities.
Internal constraints of the engineering schedule: interfaces between disciplines, vendor input.
How to take into account the geopolitical environment of the project, the constraints of objectives and means.
Adequacy of the deadlines of completion to the context. Deliverables related to the critical path. Management Of Change (MOC).

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Training - Mature Fields - Subsurface Issues

MATFILD-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical understanding of methods and issues related to the reevaluation of mature hydrocarbons fields (brown fields) in order to optimize the production and increase the reserves

Level

Knowledge

Public

Geoscientists, reservoir engineers, petroleum engineers and asset managers involved in managing and optimizing mature fields

Objectives

Attendees will be able to implement the following skills:

- Discuss and apply the principles of reservoir management; learning how to conserve the reservoir energy, implementing the proven strategies, applying the energy (advanced) technologies for field development
- Discuss and apply the economical criteria and procedure for selecting a development plan

Pedagogical & technical resources

- Interactive courses and exercises
- Various case studies allowing to apply the principles of reservoir management

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRINCIPLES OF RESERVOIR MANAGEMENT — 1 day

Introduction to field redevelopment study.
Reserves evaluation.
Understanding the reservoir production energy.
Development using proven strategies.
Reservoir monitoring and data acquisition.
Application of improved recovery techniques.

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Exercises.

RESERVES ESTIMATIONS, PROBLEMS IDENTIFICATION — 1 day

Performance analysis and criteria for performance analysis methods.
Identifying shut-in or low PI's wells.
Analyzing the surface gathering network and identifying the main bottlenecks.
Defining a monitoring plan.
Improved Oil Recovery (IOR) techniques.
Enhanced Oil Recovery (EOR) techniques.
Exercises.

PRINCIPLES OF RESERVOIR MANAGEMENT PRINCIPLES - CASE STUDIES — 2 days

Case study n°1: Development of a reservoir with excessive gas production.
Case study n°2: Development of tight oil reservoirs (improved techniques).
Case study n°3: Development of a mature field (proven strategies).

PROJECT ECONOMICS & RISK EVALUATION — 1 day

Fundamentals of petroleum economics.
Economic evaluation criteria.
Uncertainty analysis and quantification.
Risk analysis and management.
Exercises.

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Training - Thermal Equipment

MATHER-EN-P | Face-to-face only | 4 days

This course provides in-depth knowledge of heat exchangers, furnaces and boilers installed in the Oil & Gas industry

Level
Knowledge

Public
Engineers, technical staff and supervisors involved in the technology and operation of thermal equipment

Objectives
Attendees will be able to implement the following skills:

- Describe heat exchange laws and identify key parameters impacting exchange coefficients and pressure drops
- Select a type of exchanger construction with full knowledge of the advantages and disadvantages
- Explain the impact of operating conditions on furnace and boiler performance
- Identify the optimization parameters of a combustion plant and explain the operation of the main control loops

Pedagogical & technical resources

- Study of main components of burners, tube coils and refractory
- Actual examples and applications from the refining, petrochemical and chemical industry
- Trainee participation is continuously encouraged through the use of case studies selected by the trainees themselves

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

THERMAL EQUIPMENT & HEAT TRANSFER — 0.5 day

Heat exchange conditions: convection coefficients, resistance caused by the walls and/or fouling. Overall heat

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transfer coefficient.
Heat transfer by radiation: parameters influencing heat transfer, type of fuel burned, tube temperature, fouling consequence.

HEAT EXCHANGERS TECHNOLOGY & SELECTION CRITERIA — 1 day

TEMA standard heat exchangers, selection criteria for different types of shell, front ends and rear ends, floating end construction.
Tubes: length, diameter and gage, pattern and pitch, tube-to-tube sheet connection.
Baffles and support plates: type of transversal baffles, baffles cut, spacing.
Thermal performance: fluid flow distribution, geometrical characteristics and technological constraints.
Other types of heat exchanger: tubular or plate type, air coolers and condensers. Maintenance and cleaning.

HEAT EXCHANGERS PERFORMANCE & MAINTENANCE — 0.75 day

Heat exchanger performance follow-up: influence of fouling.
Inspection of exchanger bundles. Hydraulic pressure test: case of U tube bundle and floating head heat exchangers.

FURNACES & BOILERS TECHNOLOGY — 1.25 days

Different types of furnaces and their features. Operating conditions.
Boiler technology and operating conditions.
Efficiency of heat recovery: estimation rule. Parameters influencing heater efficiency.
Construction of heat exchange areas and refractory materials.
Air and flue gas circulation: natural and forced draft.
Burner technology: fuel and air supply and mixture. Low NOx and ultra-low NOx burners technology.

HEATERS OPERATION — 0.5 day

On stream operation: monitoring of combustion and heating. Modifying operating conditions.
Control system: air/fuel ratio control, process fluid outlet temperature, steam pressure, feed water flow rate control, phenomena disrupting the steam drum level. Safety prescriptions on heaters, process fluid, combustion, fuel circuits.
Safe and reliable operation: main recommendations. Start-up and shutdown: preparation, safe ignition procedures.

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Training - Mature Fields - Surface Production Issues

MATURE-EN-P | Face-to-face only | 5 days

This course aims to provide an overview of field aging effects on production and of the solutions to maintain the production in mature fields

Level
Skilled

Public
Field, process or project engineers involved in mature oil field development/sales/take-over projects

Objectives
Attendees will be able to implement the following skills:

- Understand the specificities of mature field developments
- Maintain well productivity
- Compensate production decline
- Adapt surface facilities to field aging

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO MATURE FIELD DEVELOPMENTS CHALLENGES — 0.25 day

DRIVE MECHANISM & ENHANCED OIL RECOVERY — 0.5 day

Concept selection of an EOR technique.
Validation process of an EOR technique.
Introduction to chemical EOR techniques.

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RESERVOIR PRESSURE MAINTENANCE TECHNIQUES — 0.25 day

WELL ACTIVATION — 0.5 day

Gas lift.
Use of PCP, beam pump and ESPs.

WELL PRODUCTIVITY — 0.5 day

Identifying a low well productivity.
Root causes and remediation.

TROUBLESHOOTING OF MATURE WELLS — 0.5 day

Identifying problems of each well and associated remediation.
Strategy for optimized remediation integration at the level of a field.
Integrity of mature wells.

ADAPTATION OF OIL TREATMENT TO PRODUCTION AGING — 0.5 day

Evolution of emulsion quality over time.
Evaluation of separators water handling capacity (design case/current operating conditions).
Examples of process adaptation to field aging.

ADAPTATION OF WATER TREATMENT — 0.5 day

Evolution of water production over time.
Adaptation of production water treatment capacities.

ADAPTATION OF GAS TREATMENT — 0.25 day

Evolution of associated gas flowrate over time.
Evolution of gas quality.
Gas recompression needs and adaptation of the gas compression package.
Condensate recovery.

ENERGY EFFICIENCY IN MATURE FIELD — 0.25 day

Equipment performances.
Process optimization.
Fuel gas requirements vs. available associated gas.

EXAMPLES OF MATURE FIELD DEVELOPMENTS — 0.5 day

Example of Gabon and Cameroon mature fields developments.

CORROSION MANAGEMENT IN MATURE FIELD — 0.5 day

Corrosion mechanism.
Integrity of wells and flow line.

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Training - Site Emergency Management

MEMIR-EN-P | Face-to-face only | 3 days

This course provides personnel with formal training in command, control, communications and stress-related factors in the management of major emergencies

Level

Knowledge

Public

Personnel designated as being in charge of, are members of, or provide support to an emergency management team

Objectives

Attendees will be able to implement the following skills:

- Identify the key factors associated with maintaining control throughout the development or escalation of an emergency situation
- Describe how to manage communication, emergency-related information and put into place predetermined plans during emergency situations

Pedagogical & technical resources

- Several applications and illustrations
- On site exercise

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WHAT IS A MAJOR EMERGENCY — 0.25 day

Local safety regulations.
Company rules.
Hazard study: escalation, consequences.
Emergency Response Plan (ERP).
Organization.
Resources required to face emergencies.

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External parties:

- Headquarters.
- Authorities.
- Neighbors.
- Other companies.

EMERGENCY RESPONSE PLAN — 0.5 day

Typical content.
Analysis of Emergency Response Plan.
How to use it?
Why is it an essential document?
Which parts are essential?

EMERGENCY RESPONSE TEAM — 0.25 day

General organization.
Functions and responsibilities of ERT members.
Competencies and training.
To be permanently ready to face accidents: functions and roles, ERP, CRR and its equipment.
Frequency of drills.

EMERGENCY RESPONSE MANAGER — 0.25 day

Function and responsibilities.
Competencies and training.
How to manage a team in emergencies situations:

- Difference between normal and emergency management.
- Leadership.
- Uncertainty.
- Importance of decision making.
- Stress: managing self and team stress.

CRISIS RESPONSE ROOM — 0.25 day

Equipment:

- Communication means.
- Recording means.
- Plans and technical data.

Ergonomics.

EMERGENCIES SPECIFIC TOOLS & METHODS — 0.5 day

Time management: “time-out”.
How to communicate:

- With company staff.
- With authorities.
- With ERT.

Communication tools: radio, phone...
Analysis of initial situation:

- Evaluate quickly.
- Anticipate.

Specific tools:

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- Reflex sheets.
- Guide sheets.
- Checklists.

How to record events, decisions and actions.

EXERCISE — 1 day

Based on one of the ERP scenarios.

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Training - Day-to-Day Energy Optimization for Industrial Plants

MENERG-EN-P | Face-to-face only | 4 days

This course aims to optimize energy consumption and operational costs by improving operation of thermal equipment and steam network balance

Level

Skilled

Public

Operation, technical staff & supervisors involved in the technology and operation of thermal equipment, and interested in energy consumption optimization of the plant

Objectives

Attendees will be able to implement the following skills:

- Identify opportunities to improve energy balances on an industrial site
- Define operating conditions and means of adjustment to optimize combustion in furnaces and boilers
- Identify key points in the production and economic use of steam and electricity in factories

Pedagogical & technical resources

- Practical course and case studies based on industrial feedbacks
- Numerous exercises to improve understandings

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ENERGY BALANCE - EFFICIENCY & CONTEXT — 0.25 day

KPI's definition (Key Performance Indicators): energy intensity and efficiency, units and use.
Motivations and constraints: energy dependence and regulation.
Different approaches for energy efficiency: operation improvement, operating conditions optimization, significant improvement solutions, Best Available Techniques (BAT).

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ENERGY CONSUMPTION INSIDE FURNACES & BOILERS — 0.75 day

Main type of furnaces and boilers. Operating conditions.
Heat balance, efficiency estimate. Scope and limitations to improve efficiency.
Material and equipment used to improve efficiency and heat recovery.
Applications and exercises:

- Heater efficiency estimate and flue gas composition calculation.
- Boiler operating conditions analysis - Heat recovery in radiant and convection zone.
- Impact of fuel composition on atmospheric emissions.

ELECTRICITY & STEAM PRODUCTION — 1.25 days

Cogeneration cycles: boiler-steam turbine, gas turbine-waste heat boiler.
Operating conditions (extraction or discharge pressure, single recovery or post-combustion waste heat boiler's operation) and thermal performance.
Steam network operation and balance. Mechanical energy produced by steam expansion, energy recovery and electricity production optimization.
Sources of margin: technology and use of steam traps.
Application:

- Study of a power plant.
- Estimation of production cost for steam (HP, MP, LP) and electricity.

HEAT & MECHANICAL ENERGY RECOVERY — 1.25 days

Scope and limitations of heat recovery inside heat exchangers. Parameters impacting heat flux and heat transfer.
Sources of margin: heat exchangers performance follow-up, impact of fouling, cleaning strategy and optimum cleaning frequency calculation.
Low temperature heat recovery: heat pumps solutions or mechanical compression of gases (main operating constraints).
Mechanical energy recovery inside process-gas turbines.
Application:

- Heat exchanger train performance follow-up.
- Optimum cleaning frequency calculation.

PROCESS OPERATION — 0.5 day

Limitation of losses: mechanical (operating conditions) and thermal (insulation).
Ways to reduce energy consumption by adjusting operating conditions (pressure, recycle gas flowrate...), thermal integration.
Applications:

- Study of different flow control system on compressor.
- Impact of a distillation column operating parameters on energy consumption.
- Impact of a lack of thermal insulation.

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Training - Metering and Allocation

METER-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge of metering equipment and applications in the Oil & Gas industry

Level
Skilled

Public
Operational staff of Oil & Gas field treatment plants and terminals, instrumentation specialists, petroleum architects, project engineers, reservoir engineers, well performance specialists, completion specialists, personnel from engineering companies and all professionals interested in metering methods and equipment used in the petroleum industry

Objectives
Attendees will be able to implement the following skills:

- Review different kinds of metering and allocation methods and assess importance of accuracy
- Grasp technology and operating principles of single-phase metering equipment
- Understand standards of liquids and gases transactional metering
- Assess operation, maintenance and calibration techniques of metering installations
- Review multiphase metering advantages, technology and operating principles

Pedagogical & technical resources

- Applications and illustrations from the industry
- Site visit according to possibility

Assessment of achievements

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- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DIFFERENT TYPES OF METERING - IMPORTANCE OF METERING — 0.5 day

Types of metering: technical, transactional, allocation, fiscal.
Importance of metering accuracy.

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DATA PROCESSING 0.5 day

Technical material balances, data reconciliation, data architecture, architecture of DCS, data recording.

IMPLEMENTATION OF A METERING INSTALLATION - INFLUENCE ON PROCESS 0.5 day

Friction losses, introduction of a cold spot, intrusivity, leakage risks...

SINGLE-PHASE METERING: OPERATING PRINCIPLE & EQUIPMENT 1 day

Fluids dynamics.
Different types of single-phase meters:

- Meters based on kinetic energy (ρV^2): orifice plate meters, pitot tubes, rotameters.
- Meters based on velocity: direct meters (turbines, volumetric meters) or indirect meters (ultrasounds, electromagnetic, vortex, thermal, turbines).
- Derived meters: use of centrifugal pump characteristic curve, use of rotation speed of a positive displacement pump...
- Tracers: chemical, radioactive, inter-correlation.

TRANSACTIONAL METERING OF LIQUIDS 0.5 day

Static transactional metering or pseudo-transactional metering...
Metering bench; turbines, volumetric, ultrasounds.
Calibration of metering installations on test bench in manufacturing facilities or on site.
Operation of metering installations: maintenance, calibration.
Calculators: corrections, conversion into standard volumes.
Sampling, online analysis and lab analysis.

TRANSACTIONAL METERING OF GASES 0.5 day

Metering bench; turbines, volumetric, ultrasounds.
Calibration of metering installations on test bench in manufacturing facilities or on site.
Operation of metering installations: maintenance, calibration.
Calculators: corrections, conversion into standard volumes.
Sampling, online analysis and lab analysis.

MULTIPHASE METERING: OPERATING PRINCIPLE & EQUIPMENT 1 day

Advantages of multiphase metering.
Fluids: flow modes, composition.
Principle of multiphase measurement: gamma-metric measurement, volume measurement, passive noise analysis use of dielectric, of Venturi, of inter-correlation.
Use of optic fibers: inter-correlation, sound velocity.
Description of some equipment available for multiphase measurement: 3D, Roxar, Agar, Haimo, MPM, Weatherford.
Installation of multiphase measurement - Impact on process: fluid conditioning, intrusiveness.
Subsea and downhole multiphase meters.
Calibration at manufacturer facilities.
Operation and maintenance of multiphase meters.

ALTERNATIVES TO THE USE OF MULTIPHASE METERS 0.5 day

4D seismic. Use of natural or introduced tracers.
Estimation of the contribution of each reservoir.

Sessions

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Pau - From 09/21/2026 to 09/25/2026 **4730 €/HT**

Pau - From 09/20/2027 to 09/24/2027 **4840 €/HT**

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Training - Financial Management of an International Oil and Gas Company

MFP-EN-P | Face-to-face only | 5 days

This course provides a deeper knowledge on accounting in the oil industry and to introduce the tools of financial analysis and management

Level
Skilled

Public
Upstream professionals who would like to understand the bases of financial analysis in the upstream Oil & Gas activities

Objectives
Attendees will be able to implement the following skills:

- Appreciate the specificities of the international petroleum accounting standards
- Define fundamentals of cost analysis and control
- Analyze the financial situation of a company

Pedagogical & technical resources
Case studies and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FINANCIAL MANAGEMENT OBJECTIVES — 1 day

Shareholder expectations.
The different aspects of financial management.
Reporting requirements.

GENERAL ACCOUNTING, THE FOUNDATION OF FINANCIAL MANAGEMENT — 1.5 days

Accounting principles and standards.
Financial statements and consolidated accounts.

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SPECIFICS OF UPSTREAM OIL ACCOUNTING — 0.5 day

Mining rights, exploration, depreciation (UOP).
Impairment of assets, provision for decommissioning and site restoration.

ANALYSIS OF ORGANISATIONAL PERFORMANCE: FINANCIAL ANALYSIS — 1.5 days

Financial analysis plan.
Analysis of margins, investments, Working Capital, financial structure and profitability.

DAY-TO-DAY FINANCIAL MANAGEMENT: COST ACCOUNTING — 0.5 day

Objectives and methods. Cost allocation.
Management charts and variance analysis.

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Training - Gas Markets and Trading

MGN-EN-P | Face-to-face only | 2 days

This training provides a better understanding of the structure, the methods of operation, the uses and the impacts of gas physical, financial and paper trading

Level
Skilled

Public
All personnel in the gas or associated industries needing to improve their knowledge and understanding of gas trading and pricing mechanisms

Objectives
Attendees will be able to implement the following skills:

- Analyze the fundamentals of gas supply and regional demand and the basic structure of gas sales agreements
- Review the different gas trading markets, types of transactions and the hedging techniques available

Pedagogical & technical resources

- Examples of contracts
- Statistical data

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS SUPPLY & DEMAND — 0.25 day

Evolution of gas demand. Projections.
Gas reserves and production.
Gas producing countries. International supply projects.
Regional gas demands.
International trade. LNG trading.

LONG TERM CONTRACTS — 0.5 day

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Types of contracts.
Features of long term contracts.
Contractual quantities, nominations and Take-or-Pay.
Gas pricing: indexation principle.
Concepts of market value and cost plus.

SPOT & FORWARD MARKETS — 0.5 day

Spot markets.
Forward contracts.
North American Hubs.
Spot markets in UK and continental Europe.
Price References and the role of reporting agencies.

FUTURES MARKETS — 0.5 day

Features of gas Future contracts.
Exchanges and their organization: NYMEX, ICE.
Hedging using Future contracts.
Basis risk and hedging imperfections.

RISK MANAGEMENT — 0.25 day

Swaps: principles, basics and characteristics.
Options (call, puts): principles, basics and characteristics.
OTC derivatives: caps, floors, collars.

Sessions

Rueil-Malmaison - From 11/09/2026 to 11/10/2026 — **2240 €/HT**

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Training - Machine Learning Concepts

MLBASIC-EN-D | **Distance only** | **3 days**

Machine learning is a subfield of Artificial Intelligence that acts as a bridge between Data Science and Artificial Intelligence. Its objective is to understand the structure of data and to build data-driven models for further automate decision-making processes, in most technical domains including the O&G industry

Level

Awareness

Public

The course is intended for O&G professionals interested in machine learning and its applications to O&G

Objectives

Attendees will be able to implement the following skills:

- describe the different types of machine learning, algorithms, techniques and models
- identify the main programming languages used in machine learning
- examine some machine learning applications in the O&G industry

Pedagogical & technical resources

Interactive lectures and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO MACHINE LEARNING

MACHINE LEARNING METHODS

Supervised machine learning.
Unsupervised machine learning.

COMMON ALGORITHMIC APPROACHES

Decision tree, K nearest neighbors, deep learning.

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PROGRAMMING LANGUAGES

Python, Java, R, C++.

EVALUATING MACHINE LEARNING MODELS

Quantify errors; testing and validation.

EXAMPLES OF MACHINE LEARNING APPLICATIONS IN O&G

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Training - Introduction to Data Analytics and Machine Learning Techniques for Geosciences and Reservoir Engineering

MLRES-EN-P | **Face-to-face only** | **3 days**

This course provides an extensive and practical knowledge for applying data analytics in reservoir modeling and predicting the well performance; the data driven approach is used to understand the main factors affecting the reservoir performance, using the fuzzy logic to rank these parameters and build a predictive model to optimize the reservoir response. Emphasis will be put on the use of supervised and unsupervised neural networks algorithms

Level

Awareness

Public

Reservoir engineers and geoscientist interested in data analytics, data driven reservoir modeling and machine learning methods for predicting reservoir performance

Objectives

Attendees will be able to implement the following skills:

- Apply the basic statistical methods for better data analysis
- Apply clustering methods for data classification (facies logs modeling)
- Build a predictive model using available machine learning methods and use it as a proxy model for predictions, uncertainty analysis and quantification

Pedagogical & technical resources

Interactive lectures and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO DATA ANALYTICS — 0.5 day

Principles of data analytics.
Data statistics (univariate, bivariate, distributions).

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Data ranking (correlation matrix, principal component analysis, fuzzy logic).

MACHINE LEARNING TECHNIQUES — 1 day

Fundamentals of machine learning (supervised and unsupervised).
Evaluating machine learning models.
Machine learning workflow.

PREDICTIVE MODEL & UNCERTAINTY QUANTIFICATION — 1.5 days

Build a predictive model using machine learning techniques.
Predictive model, quantify errors, testing and validation.
Examples for predictive model in reservoir engineering.

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Training - Text Analysis using Machine Learning

MLTXT-EN-D | **Distance only** | **1 day**

In the Oil & Gas industry, like in other domains, most of the engineering knowledge and experience is saved in unstructured documents such as PDF files, MS Office files or just scans of paper reports. Extracting information from this file required a tremendous effort from domain experts and data officers since deterministic data mining tools have limited capabilities Today some new machine learning systems proposes some new ways to extract more information from unstructured documents. This course will review the more common used algorithms in the domain of text analysis and is a good introduction to the domain of machine learning

Level

Awareness

Public

Geoscientists who have to use machine learning and/or text analysis tools to reach their business objectives (Boot camp training with a notebook designed for people having no or limited python experience, but with general knowledge of coding)

Objectives

Attendees will be able to implement the following skills:

- Understand the main algorithms used for text mining and text analysis, and run a text classifier using a Colab notebook

Pedagogical & technical resources

This course can be delivered as a presential or virtual classroom. Each training module contains lectures, hands-on practices and/or case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION

Problem statement.

TEXT CLASSIFICATION USING A ML ALGORITHM IN A NOTEBOOK

Exploring the document with EDA.

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Features engineering using the scikit-learn library.
Model training:

- Logistic regression.
- Passive aggressive classifier.
- Random forest classifier.
- Gradient boosting classifier.

Model validation:

- Precision, recall, F1 score.
- Confusion matrix.
- Lime, ELI5.

NATURAL SPEECH PROCESSING

Semantic analysis.
Markow chains.
Sentiment analysis.

DETECTING KEY-WORDS/METADATA VALUES IN TEXT

Detecting candidate values with deterministic method.
ML to associate a confidence factor to each candidate.
Improving the model thanks to the user experience.

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Training - Managed Pressure Drilling "MPD"

MPD-EN-D | Distance only | 5 days

To provide some knowledge related to well complex completion, MPD and HPHT operations

Level
Skilled

Public
Drilling/completion/fluid engineers, supervisors involved in drilling and completion operations.

Objectives
Attendees will be able to implement the following skills:

- Understand MPD: equipment and technique
- Understand specificities and associated measures of HPHT wells
- Use MPD during drilling operations

Pedagogical & technical resources

- Some equipment and cutaway tools display available at IFP
- Summary notes prepared and presented by participants
- Use of full-size simulator MPD module for practical training

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MANAGED PRESSURE DRILLING — 2 days

Introduction:

- Definition (IADC), history and objectives.
- Why using MPD?
- Surface back pressure (SBP) introduction.

Main components and layout:

- Rotating control device (RCD).

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- Choke manifold including Coriolis mass flow meter (example of real layout).
- Drill pipe non return valves.

MPD operations with RCD:

- Drilling: difficulties to differentiate “well breathing-supercharge” and an “influx”; management of the surface back-pressure (manual, SBP mode, APC mode, “C” mode); use of PWD; kick detection (EKD, virtual trip tank); limitations and risks, well control matrix.
- Tripping/stripping: POOH (adjusting SBP); temperature effect mud weight (static and dynamic temperatures), mitigation; mud cap, why and when, risks and limits; RIH; procedure example.
- Dynamic fit/lot: principles, dynamic FIT with PWD, dynamic LOT with PWD and Coriolis flow meter, real time SBP setting.
- Dynamic pore pressure (pp) assessment: principle, SBP and AFL, MW adjustment for drilling and tripping/stripping.
- Casing RIH and cementing: case study.

Conclusion:

- Advantages of MPD.
- Risks and limitations.

HPHPT WELLS 1.25 days

HPHPT definitions:

- API.
- Other standards.
- PP/FP profiles: narrow mud windows notion, reservoirs (geomechanics and effect of depletion), pressure transition zone (PTZ).

Basic design engineering:

- Casing design specific to HPHT (thermal simulations / introduction to limit-state and reliability-based design / survival loads).
- OCTG choice (material grade, SSC, qualification).
- OCTG connector choice (test and qualification).
- Well equipment (liner, wellheads, casing hangers...).
- Subsea HPHT specificities (wellhead fatigue, X-Mas tree choice, introduction to APB).
- Annulus management systems (N2 cushion, burst discs, crushable foams...).
- Well architecture specificities of HPHT well. Real case presentation.

Advanced HPHT well engineering:

- Casing wear (modeling, measurement, remedial).
- Wellhead growth (modeling and impacts, heat island effect).
- Fluids and cement aspects of HT environments (mud weight reference at 50°C).
- Kick tolerance modeling (dispersed modeling w/drill bench or equivalent, limitations of single bubble in HPHT).
- Hydraulic modeling in HPHT operations.
- Logging (current HT limitations on MWD tooling).
- Infill drilling.

Operational preparation:

- Rig inspection program for HPHT operations.
- Importance of bridging document/JDM between contractor and operator.

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- Equipment specific to HPHT (mud coolers, kick assembly, dart sub, MPD...).
- Hydrates (formation mechanisms, prevention).
- HPHT checklists (example supplied).
- HPHT procedures (pit management and discipline, breaking circulation, connections, Horner plot flow checks, tripping procedures, pump out of hole or stripping if MPD).

Operational execution:

- ECD management.
- Wellbore breathing (breathing vs. influx, loss-gain scenarios, supercharging mechanisms, fracture...).
- Well control aspects.
- LOT/FIT in HPHT.
- Mud weight management.
- Fingerprinting (dummy) connections, swab and surge, compressibility test, drain back/flow volume...).
- Case studies (HPHT train wrecks, database analysis of exploration and development wells).

PRACTICAL TRAINING ON DRILLING SIMULATOR — 1.5 days

Practical case study on drilling simulator - MPD module.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Managed Pressure Drilling "MPD"

MPD-EN-P | Face-to-face only | 5 days

To provide some knowledge related to well complex completion, MPD and HPHT operations

Level
Skilled

Public
Drilling/completion/fluid engineers, supervisors involved in drilling and completion operations.

Objectives
Attendees will be able to implement the following skills:

- Understand MPD: equipment and technique
- Understand specificities and associated measures of HPHT wells
- Use MPD during drilling operations

Pedagogical & technical resources

- Some equipment and cutaway tools display available at IFP
- Summary notes prepared and presented by participants
- Use of full-size simulator MPD module for practical training

Assessment of achievements

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Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MANAGED PRESSURE DRILLING — 2 days

Introduction:

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- Choke manifold including Coriolis mass flow meter (example of real layout).
- Drill pipe non return valves.

MPD operations with RCD:

- Drilling: difficulties to differentiate “well breathing-supercharge” and an “influx”; management of the surface back-pressure (manual, SBP mode, APC mode, “C” mode); use of PWD; kick detection (EKD, virtual trip tank); limitations and risks, well control matrix.
- Tripping/stripping: POOH (adjusting SBP); temperature effect mud weight (static and dynamic temperatures), mitigation; mud cap, why and when, risks and limits; RIH; procedure example.
- Dynamic fit/lot: principles, dynamic FIT with PWD, dynamic LOT with PWD and Coriolis flow meter, real time SBP setting.
- Dynamic pore pressure (pp) assessment: principle, SBP and AFL, MW adjustment for drilling and tripping/stripping.
- Casing RIH and cementing: case study.

Conclusion:

- Advantages of MPD.
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HPHPT definitions:

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- Other standards.
- PP/FP profiles: narrow mud windows notion, reservoirs (geomechanics and effect of depletion), pressure transition zone (PTZ).

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- Well architecture specificities of HPHT well. Real case presentation.

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- Casing wear (modeling, measurement, remedial).
- Wellhead growth (modeling and impacts, heat island effect).
- Fluids and cement aspects of HT environments (mud weight reference at 50°C).
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- Logging (current HT limitations on MWD tooling).
- Infill drilling.

Operational preparation:

- Rig inspection program for HPHT operations.
- Importance of bridging document/JDM between contractor and operator.

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- Equipment specific to HPHT (mud coolers, kick assembly, dart sub, MPD...).
- Hydrates (formation mechanisms, prevention).
- HPHT checklists (example supplied).
- HPHT procedures (pit management and discipline, breaking circulation, connections, Horner plot flow checks, tripping procedures, pump out of hole or stripping if MPD).

Operational execution:

- ECD management.
- Wellbore breathing (breathing vs. influx, loss-gain scenarios, supercharging mechanisms, fracture...).
- Well control aspects.
- LOT/FIT in HPHT.
- Mud weight management.
- Fingerprinting (dummy) connections, swab and surge, compressibility test, drain back/flow volume...).
- Case studies (HPHT train wrecks, database analysis of exploration and development wells).

PRACTICAL TRAINING ON DRILLING SIMULATOR **1.5 days**

Practical case study on drilling simulator - MPD module

KNOWLEDGE ASSESSMENT **0.25 day**

Sessions

Pau - From 10/26/2026 to 10/30/2026 **4650 €/HT**

Pau - From 10/04/2027 to 10/08/2027 **4760 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Oil Markets and Trading

MTP-EN-P | Face-to-face only | 3 days

This training provides a better understanding of the structure of the markets, the uses and the impacts of physical and financial markets for crude oil and petroleum products

Level
Skilled

Public
All personnel in the petroleum or associated industries needing to improve their knowledge and understanding of crude oil and petroleum products trading and pricing mechanisms

Objectives
Attendees will be able to implement the following skills:

- Analyze the parameters which influence prices of crude oil and prices of petroleum products and the ways of evaluating price risk
- Review the different oil trading markets by type of transaction and diffrenciate the different derivatives
- Comprehend hedging techniques available for protection against fluctuations in prices while understanding the importance of maritime transport costs in oil supply economics

Pedagogical & technical resources

- Syndicate works on case studies
- Case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OIL MARKETS FUNDAMENTALS — 0.25 day

Energy resources, demand and supply.
Oil producing and consuming countries, OPEC, international oil companies: constraints and strategies.
General features of trading and shipping : freight rate, worldscale, chartering contracts

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CRUDE & PETROLEUM PRODUCTS PHYSICAL TRADING — 1 day

What is the value of a crude oil? The refiner's point of view.
Different types of contracts: long term, spot and forward.
Main oil markets and their features.
Key benchmark crudes.
The role of the PRAs (price reporting agencies).
Links between Trading and Shipping.
Products trading.
Main provisions of a sale/purchase contract.

EXCHANGES & FUTURES TRADING — 1 day

The concept of volatility
Definition of a contract: the cases of WTI and Brent.
Exchanges and their organization: the cases of NYMEX and ICE.
Main Futures Markets.
Hedging principles: for a refiner, a producer, a marketer, a consumer
Hedging imperfections, basis risk.
Market structure (contango, backwardation).
Case studies.

DERIVATIVES & RISK MANAGEMENT — 0.75 day

Options: principles, basics and characteristics.
Interests and limits of options.
Swaps: principles, basics and characteristics.
Interests and limits of swaps
Clearing OTC transactions.
Options: pricing and sensitivities.
Options strategies: caps, floors, collars.
How to account for the risk: Mark to Market and Value-At-Risk

Sessions

Rueil-Malmaison - From 10/19/2026 to 10/21/2026 — **2890 €/HT**

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Training - Mud Logging for Data Engineers - IFP Training Certificate

MUDLOGD-EN-D | Distance only | 4 hours

The purpose of this IFP Training Certificate, is to make sure that the mudlogging staff has the proper knowledge/competencies in order to detect any operational issue at its early stage and undergo adequate action to solve it and avoid a possible dramatic situation on the rig

Level

Expert

Public

Data Engineers

Objectives

Attendees will be able to implement the following skills:

- Assess the candidate's knowledge and competencies, ensuring an understanding of the fundamental technical aspects of the position, as well as their roles and responsibilities on the rig
- Identify areas where each candidate's knowledge or competencies require improvement
- Recommend appropriate training actions to address identified gaps and support continuous development

Pedagogical & technical resources

- A Test
- An Individual Interview

Assessment of achievements

The assessment is described in the program

Prerequisites

In order to be eligible for this On-the-Job Skills - IFP Training Certificate, the candidate must provide justification of a university or similar degree/diploma in geology
He/she will also have to provide justification of a career path consistent with the objectives presented in this reference document as a data engineer or as a mudlogging specialist (gas specialist, pore pressure specialist ...).
Especially, the candidate must justify of at least six (6) experiences on a rig as a mud logger/data engineer/mudlogging specialist

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TEST — 2 hours

The Test is an on-line exam composed of sixty-five (65) randomly selected questions of various types (multiple choice questions, true/false questions etc.) extracted from a wide database of questions covering the required knowledge and know-how on ten disciplines. Drilling – Equipment & Environment, Drilling – Monitoring & Calculations, Geology Fundamentals, Sampling, Gas Chain & Gas Evaluation, HSE, Roles & Responsibilities,

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Geosteering, Coring and MWD-LWD. However Geosteeering, Coring and MWD-LWD results will not be part of the evaluation.
Additionaly they are five (5) Eliminatory Questions the candidate will have to validate in order to be certified.

INDIVIDUAL INTERVIEW **2 hours**

Organized in three (3) parts:

- Eliminatory Questions (if necessary depending on the Test's result).
- Situation Analysis.
- Additional Skills covering Basic Mathematics, Basic Safety, Role & Responsibility, Communication and Teamwork.

Sessions

Classe virtuelle -	From 07/21/2026 to 07/23/2026	**3540 €/HT**
Classe virtuelle -	From 09/23/2026 to 09/25/2026	**3540 €/HT**
Classe virtuelle -	From 12/09/2026 to 12/11/2026	**3540 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Mud Logging for Mud Loggers - IFP Training Certificate

MUDLOGM-EN-D

Distance only

4 hours

The purpose of this IFP Training Certificate, is to make sure that the mudlogging staff has the proper knowledge/competencies in order to detect any operational issue at its early stage and undergo adequate action to solve it and avoid a possible dramatic situation on the rig

Level

Expert

Public

Mud Loggers

Objectives

Attendees will be able to implement the following skills:

- Assess the candidate's knowledge and competencies, ensuring an understanding of the fundamental technical aspects of the position, as well as their roles and responsibilities on the rig
- Identify areas where each candidate's knowledge or competencies require improvement
- Recommend appropriate training actions to address identified gaps and support continuous development

Pedagogical & technical resources

- A Test
- An Individual Interview

Assessment of achievements

The assessment is described in the program

Prerequisites

In order to be eligible for this On-the-Job Skills - IFP Training Certificate, the candidate must provide justification of a university or similar degree/diploma in geology
He/she will also have to provide justification of a career path consistent with the objectives presented in this reference document as a mud logger or data engineer. Especially, the candidate must justify of at least six (6) experiences on a rig as a mud logger/data engineer

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TEST — 2 hours

The Test is an on-line exam composed of sixty-one (61) randomly selected questions of various types (multiple choice questions, true/false questions etc.) extracted from a wide database of questions covering the required knowledge and know-how on nine disciplines: Drilling – Equipment & Environment, Drilling – Monitoring & Calculations, Geology Fundamentals, Sampling, Gas Chain & Gas Evaluation, HSE, Roles & Responsibilities, Geosteering, Coring. However Geosteeering and Coring results will not be part of the evaluation.

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Additionaly they are five (5) Eliminatory Questions the candidate will have to validate in order to be certified.

INDIVIDUAL INTERVIEW **2 hours**

Organized in three (3) parts:

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Sessions

Classe virtuelle -	From 07/21/2026 to 07/23/2026	**3540 €/HT**
Classe virtuelle -	From 09/23/2026 to 09/25/2026	**3540 €/HT**
Classe virtuelle -	From 12/09/2026 to 12/11/2026	**3540 €/HT**

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Training - Overview and Challenges of the Energy Mix

MXE-EN-P | Face-to-face only | 4 days

This course aims to provide an updated overview of the energy sector and the upcoming economic, political and environmental challenges (Covid-19, climate change, supply and demand crisis, unconventional Oil & Gas...). Participants will get a complete overview of both fossil fuels and renewable energy sources, with their respective benefits and burdens

Level

Knowledge

Public

Engineers from the energy sectors (oil, gas, renewables, power), industrial partners, executives (banking, insurance, consulting), public administration staff, PhD and postgraduate students

Objectives

Attendees will be able to implement the following skills:

- Describe the main stages (upstream, downstream, trading) of the oil and gas sectors and understand the technical and economic characteristics of hydrocarbons (production, outlets, availability, market)
- Analyze the advantages and disadvantages of each energy and interpret the evolution of factors affecting the supply and demand of the energy mix
- Identify the actors of the energy scene and their strategic lines (states, international organizations, public and private companies in the sector)
- Understand the role of renewable energies in the energy mix (maturity, intermittency, carbon footprint)

Pedagogical & technical resources

- Quiz and videos on the fundamentals of the energy sector
- Board game about the different steps of an oil or gas project
- Team game on the composition of the energy mix and the role of renewables
- Team game on factors affecting crude prices, the upstream sector and trading

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTERNATIONAL ENERGY SCENE — 0.5 day

Energy resources: definition, characteristics, conversion factor.
Climate change & energy transition: supply/demand asymmetry, Kaya's identity analysis.
Short and long-term forecasts (Covid-19 crisis, supply situation, climate change) and IEA scenarios.

OIL SECTOR ISSUES — 1 day

Stakeholder's strategy: NOC, IOC, majors, international organizations.
Upstream: stages and technical-economic aspects of the Exploration-Production.
Oil contracts and principles of oil rent sharing.
Downstream: refining economics and margins, capacity and new projects.

GAS SECTOR ISSUES — 1 day

Structure of the gas value chain: production, treatment, transportation, storage.
Pros and cons: natural gas and LNG in the energy transition.
Markets & grids, introduction to gas contracts.
Focus on current trends: crisis, market, evolutions, technological breaks...

RENEWABLES ISSUES & ENERGY TRANSITION — 1 day

Overview of the main renewables: solar, wind, hydro, bio, geothermal.
Comparison and competition: outputs, costs, availability, pros, limits.
CCUS technology and use of renewables in the Oil & Gas sector.
Stakeholders' strategy and supply chain presentation.

CASE STUDIES — 0.5 day

Economic calculations on Oil & Gas and renewables projects.
Opex, capex, revenues, assumptions, taxable income, cash flows, IRR.

Sessions

Rueil-Malmaison - From 09/29/2026 to 10/02/2026 — **3360 €/HT**

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Training - Natural Gas

NATGAS-EN-P | Face-to-face only | 5 days

This course provides a comprehensive review of the techniques involved in natural gas production, processing and transport, complemented with an overview of natural gas valorization channels

Level

Knowledge

Public

Professionals from all sectors, involved or interested in the natural gas industry

Objectives

Attendees will be able to implement the following skills:

- Explain fundamentals of natural gas composition, characteristics, production and field processing
- Understand technical issues and specific constraints of natural gas transport and storage
- Review the various end-user markets available for valorizing natural gas
- Grasp key natural gas chain economic issues

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NATURAL GAS: TYPES & PRODUCTION TECHNIQUES — 0.75 day

Types and characteristics of natural gas fields. Production techniques.
Different types of natural gases (condensate, wet or dry gas) and characterization parameters.
Constitution of natural gas well effluent, properties and specific hazards.
Case of associated gases: recovery techniques, characteristics, composition, etc.

END USES OF NATURAL GAS - MAIN QUALITY REQUIREMENTS — 0.25 day

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End uses of natural gases: fuel (domestic and industrial uses), conversion into other energy types (electricity production and cogeneration), automotive fuel (Natural Gas for Vehicles (NGV) and conversion into liquid automotive fuels GTL), chemical valorization, etc.
Quality requirements for commercial natural gases and associated products (ethane, LPG, condensates).
Examples of quality standards.

NATURAL GAS PROCESSING — 2 days

Gas dehydration (drying) and hydrate formation inhibition:

- System behavior. Moisture content of a saturated gas.
- Applications: moisture content of different gases having various compositions.
- Hydrate formation inhibition by injection of inhibitors: MeOH, MEG, DEG, LDHI, etc.
- Gas dehydration: TEG units, Molecular Sieves, etc.
- Application: summary design of TEG unit.

Gas sweetening: removal of acid components (H2S and/or CO2):

- Different techniques applicable for gas sweetening: chemical solvent processes, amine units (MEA, DEA, DGA, MDEA, etc.); physical solvent processes; hybrid (physico-chemical) solvent processes; overview of other techniques; conversion of H2S: sulfur production (CLAUS process) and tail gas processing.
- Application: summary design of an amine unit.

Natural Gas Liquids (NGL) extraction (removal of heavy components):

- External refrigeration loop.
- Joule-Thomson expansion.
- Turbo-Expander.
- Application: calculation of cryogenic loop used for NGL extraction.

Examples of gas field development schemes:

- Gas fields development options: onshore or offshore processing, single-phase or multiphase export pipelines, “Wet” or “Dry” development.
- Other treatments: mercury removal, conversion or adsorption of mercaptans (RSH), etc.

TRANSPORT OF NATURAL GAS IN LIQUID PHASE - LNG OPTION — 1 day

Liquefaction processes: principle, typical operating conditions, technology.
LNG tanks: single or double or full containment (self-standing, membrane). Hazards.
LNG transport: LNG carriers (MOSS spheres, membrane...), export and receiving terminals.
LNG regasification at the receiving terminals, options for refrigeration duty recovery.

TRANSPORT & STORAGE OF NATURAL GAS IN GAS PHASE — 0.5 day

Gas pipes: technology, capacities, equipment, recompression units, operating conditions, etc.
Underground storage (old reservoirs, aquifers, salt domes, etc.). Required treatments at outlet.

NATURAL GAS ECONOMICS — 0.5 day

Resources, production and markets.
Natural gas marketing: competition of other energy sources and consequences on gas contracts (prices and duration), cost of transport and its impact on the structure of the gas chain.
Future of the natural gas.

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Training - Non-Destructive Testing for Petrochemical Industries

NDTIW-EN-P

Face-to-face only

5 days

This course explains basic and advanced non-destructive testing methods used in the Oil & Gas industry as well as the chemical industry

Level

Knowledge

Public

Experienced operation and maintenance engineers, managers and technicians involved in the technical aspects of the Oil & Gas, refineries and chemical industries

Objectives

Attendees will be able to implement the following skills:

- Identify available non-destructive examination methods
- Select effective non-destructive examination methods based on the type of degradation, equipment and material
- Evaluate external on stream NDT and internal NDT during plant shutdown
- Understand maintenance work linked to NDT applications

Pedagogical & technical resources

- Case studies to identify capabilities and limitations of each NDT
- Practical demonstration of non-destructive examination in a workshop

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC & ADVANCED NDT TECHNIQUES — 2 days

Visual test, Liquid Penetrant test (PT), Magnetic Test (MT), Radiographic Test (RT), Ultrasonic Testing (UT, TOFD, Phased Array, IRIS), Leak Testing (LT), Electromagnetic testing (ET), Positive Material Identification (PMI), Infrared Thermography (IR), Hardness, Acoustic Emission, Magnetic Flux Leakage.

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For each technique, study:

- The basic physical principles.
- The type of degradation to be detected.
- The limitations and exclusions.
- The pros and cons compared to other NDT.
- Safety and health features.

NDT certification according to ISO and ASNT. Dates of expiration and re-issue.

PRACTICAL APPLICATION — 3 days

Visual:

- Identify local or generalized corrosion, read color and aspect of rust/corrosion compound to obtain preliminary clues about the degradation type.
- Select appropriate light intensity.

Penetrant test and magnetic test:

- Surface preparation methods, different types of penetrants and developers.
- Observation of the cracks.

Thickness UT, shear wave, TOFD:

- Surface preparation, types of probes.
- Analysis of the various signals.

Radiography - X rays and gamma rays:

- Understand the relationship between energy and time exposure.
- Review safety issues during field or shop choosing.
- Read radiographic films to analyze remaining thickness and cracks.
- Discover new developments such as digital radiography.

IR thermography: after appropriate tuning, manipulate the camera to see hot spots.
Hardness:

- Practice Brinell, Rockwell or Vickers methods; compare results for carbon steel and stainless steel.
- Practice test on base metal, heat affected zone, and weld and infer the tensile strength.

PMI: practice the method on different metallurgies.

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Training - Gathering Network: Design Engineering

NETWORK-EN-P | Face-to-face only | 5 days

This course aims to provide a practical understanding of gathering network conceptual design and tie-in assessment and to acquire best practices of Oil & Gas gathering network design and simulation using PIPESIM™

Level

Skilled

Public

Engineers looking to acquire best practices of Oil & Gas gathering network design

Objectives

Attendees will be able to implement the following skills:

- Explain operational constraints of single and multi-phase flow lines
- Describe multiphase flow patterns and main disturbing factors
- Assess the implications of different gathering network architectures
- Study actual network configurations and the impact of adding tie-ins using the software PIPESIM™
- Explain the different phases of the construction of a gathering network

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Methodology illustrated by multiple industrial case studies
- Numerous design simulation using PIPESIM™

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF FLUID MECHANICS — 0.5 day

Total energy of a fluid; Bernoulli law.
Real fluid flow: viscosity, friction coefficient.

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Flow regimes: laminar and turbulent flows.
Application: evaluation of pressure drop in a pumping station.

MULTIPHASE FLOW — 0.5 day

Definition of multi-phase flow, main terminology.
Flow patterns, main considerations.
Basic understanding of different modeling approaches.

GATHERING SYSTEMS DESIGN & ARCHITECTURE SELECTION — 0.5 day

Types of gathering systems, a review of common architectures.
Backpressure and well productivity.
Design practices and guidelines.
Main considerations: pressure drop, erosion velocities.
Design of pipelines, sizing criteria and sizing methodology.
Application: sizing of an oil/gas condensate production line.

OIL/GAS GATHERING NETWORK PROJECTS — 0.5 day

Project planning; route selection; jurisdiction, permitting and rights of way.
Surface considerations; alignment; surveying and mapping.
Construction; inspection and testing.
Operation and maintenance.

GATHERING NETWORK DESIGN & OPTIMIZATION USING PIPESIM™ — 2 days

Introduction to PIPESIM™ software: building models, main considerations and recommendations.
PIPESIM™ will be used to study both gas production networks and crude oil production networks. For each type of system, the production network will be analyzed in detail:

- Well performance vs. backpressure.
- Multiphase flow modeling (flow regimes, liquid holdup, slug characteristics and pressure loss analysis) across the production network.
- Comparison of different gathering network configurations.
- Determination of optimal locations for pumps and compressors.
- Identification of locations most prone to flow assurance issues (erosion, corrosion, hydrate formation, deposits).
- Analysis of heat transfer across the production network and associated flow assurance issues.
- Identification of bottlenecks and optimization opportunities.

TIE-IN ASSESSMENT USING PIPESIM™ — 1 day

Tie-ins and their impact on existing networks.
Implementation strategies, design and operation considerations.
Introduction to gathering network simulation using PIPESIM™.
Tie-ins case studies using PIPESIM™.

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Training - Natural Gas Liquids Extraction

NGL-EN-P | Face-to-face only | 3 days

This course provides an advanced review of the techniques involved in natural gas liquids extraction and processing

Level

Knowledge

Public

Process engineers, involved in advanced Natural Gas Liquids recovery

Objectives

Attendees will be able to implement the following skills:

- Explain technical issues and specific constraints of natural gas liquids extraction
- Simulate main NGL extraction processes and compare process performances
- Explain NGL specifications and associated treatments

Pedagogical & technical resources

- Highly interactive training by industry-specialist lectures
- Process simulation using HYSYS or PROII

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NATURAL GAS & NATURAL GAS LIQUIDS PRODUCTION & VALORIZATION — 0.5 day

Field treatment of natural gas, transportation by pipe and associated quality requirements.
Natural gas monetization routes and NGLs markets.

MAIN QUALITY REQUIREMENTS — 0.25 day

Quality requirements for commercial natural gases and associated products (ethane, LPG, condensates) and associated pre-treatment: mercury removal, conversion or adsorption of mercaptans (RSH), etc.

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TECHNOLOGY USED IN THE NGL EXTRACTION UNITS — 0.25 day

Review and main characteristics of the equipment used in the NGL recovery units: plate fine heat exchangers (typical pressure drops), turbo-expander (typical efficiency, acceptable liquid ratio, enthalpy drop), demethanizer (used internals and their efficiency).

NGL RECOVERY WITH CONVENTIONAL PROCESS — 0.5 day

Needed notions of process performances and associated thermodynamics.
Process review.
Case studies:

- Simulation of expansion of a natural gas stream through a valve and a turbo-expander, impact of operating parameters on NGL recovery and products quality.
- Simulation of NGL recovery process with columns, impact of reflux on NGL recovery.

ORTLOFF PROCESS — 0.5 day

Process review.
Case study: simulation of Ortloff process, impact of reflux stream composition on NGL recovery.

CRYOMAX PROCESS — 0.5 day

Process review.
Case study: simulation of Cryomax process, comparison with Ortloff process.

NGL FRACTIONATION & ASSOCIATED TREATMENTS — 0.5 day

NGL fractionation process review.
Case study: simulation of NGL fractionation process with mercaptans, mercaptans mass balance.
NGL needed treatments (Merox or equivalent) and comparison with the adsorption process on the main gas stream.

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Training - Natural Gas Storage

NGSTOCK-EN-P | Face-to-face only | 2 days

This course provides an overview of the technical issues of various natural gas storage facilities

Level

Knowledge

Public

Professionals interested in natural gas storage: engineers, technical managers, technicians, operators

Objectives

Attendees will be able to implement the following skills:

- Review features and operating conditions of natural gas storage facilities
- Learn about gas storage equipment specificities: wells, manifolds, compression, auxiliary equipment, etc.
- Understand gas treatment techniques applied to extraction from storage in order to conform to specifications
- Grasp fundamental issues of natural gas storage economics and third-party access

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NATURAL GAS: AS A STORABLE ENERGY — 0.25 day

Why store natural gas? Needs expressed by suppliers, administration and network operators.
How? Summary presentation of the different storage systems: depleted reservoirs, aquifers, salt domes. LNG storage tanks, etc.
Where? History of underground gas storage, storage sites in Europe and worldwide. Maps and tables by types of storage, per country and stored volumes.
Gas storage and its environment: noise, exhaust, surface footprints, landscape integration, local taxes,

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workforce.

STORAGE TYPES — 0.5 day

Fluid flow in porous media. Reservoir modeling.
Depleted reservoirs, aquifers, salt domes, LNG storage tanks.
For each type of storage, presentation of development conditions, geological and structural characteristics, their specificities, the inherent hazards, the operational constraints, the repartition of sites throughout the world, etc.

STORAGE EQUIPMENT — 0.25 day

Wells: drilling specificities, downhole and surface equipment.
Gathering network.
Gas compression: why, when and how?
Extracted gas treatment: dehydration, sweetening, odorization.
Auxiliary equipment: manifolds, instrumentation and control system, safety, treatment of effluents.
Metering: primary meter, correctors, data processing.

COMPRESSION — 0.25 day

Characteristics of compressors specific to natural gas storage sites: compression ratio, runtime frequency, environment related issues (exhaust gases, noise, etc.), power types.
Types of compressor units: driver type (engine, electrical motor, gas turbine, etc.), reciprocating or centrifugal compressor, etc.
Comparison between gas turbine and motor drivers, fuel gas and electricity power.

GAS TREATMENT — 0.25 day

At the wellhead: hydrate prevention by heating or methanol injection.
In the station: dehydration, sweetening, odorization.
For each treatment, presentation of the treatment target, risks, regulation aspects, treatment techniques, common processes used for gas treatment and product regeneration, effluent treatment.

ECONOMICAL ASPECT OF GAS STORAGE — 0.5 day

Life cycle of a gas storage site.
Estimated values for CAPEX and OPEX for each storage type.
Pricing of access of third parties to storage facilities in France: analysis of the price breakdown, taking into account constraints and specificities of the storage.
Simulation of cost price per kWh, stored or delivered, for common site configurations.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Natural Gas Transport by Pipeline

NGTRANS-EN-P | Face-to-face only | 2 days

This course provides an overview of the technical and economic issues of natural gas transport by pipeline

Level

Knowledge

Public

Professionals (engineers, commercial, managerial staff, technical managers, technicians, operators...) interested in natural gas transport by pipeline, including equipment and services suppliers to gas transport companies

Objectives

Attendees will be able to implement the following skills:

- Gain an overview of the world map of natural gas pipeline networks
- Review marketed gas pipeline design: route, sizing, material, compression stations positioning and design, etc.
- Understand gas transportation network maintenance and daily operations within the framework of regulations

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO NATURAL GAS — 0.25 day

From reservoir to end user.
Chemical composition and properties of natural gas. Comparison to other combustible gases.
World reserves.
Panorama of offer, demand and movements.

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TRANSPORT NETWORK — 0.25 day

Overview of worldwide networks.
Perspectives of the development of the European network.
Interaction with other blocks of the natural gas chain: storage, LNG terminals, compression stations, network interconnections, delivery to the client.
Economical and technical comparison between transport by pipeline and LNG carriers.

DESIGN & CONSTRUCTION OF A GAS PIPE — 0.5 day

Design standards: pressure, length, volume, diameter.
Fundamentals of metallurgy welding techniques and coating materials.
Pipe laying:

- Different steps of pipe laying operations.
- Cost/duration of pipe laying and compression station construction.

COMPRESSION — 0.25 day

Characteristics of compressors: compression ratio, run-time frequency, environment-related issues (exhaust gases, noise, etc.), power types.
Types of compressor units: driver type (engine, electrical motor, gas turbine, etc.), reciprocating or centrifugal compressor.
Comparison between gas turbine and motor drivers, fuel gas and electricity power.

OPERATION OF A NETWORK — 0.5 day

Maintenance, monitoring and technical management, risk prevention, safety regulations (law of August 4, 2006), cathodic protection, equipment maintenance, monitoring and controls, metering.
Network operation management: planning, execution, allocations and accounts.

ECONOMICAL ASPECTS OF GAS TRANSPORT BY PIPELINE — 0.25 day

Investment costs (CAPEX).
Lifetime of a gas pipe.
Operation costs (OPEX).
Pricing for access of third parties to the gas transport network: analysis of the price breakdown in France.
Simulations of cost price per kWh delivered, for some typical cases.

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Training - Energy Transition Engineer

NRJENG-EN-P | Face-to-face only | 60 days

This course aims to provide the in-depth technical knowledge of energy transition necessary to hold rapidly, and very effectively, the position of field operations engineer or project engineer

Level

Skilled

Public

Engineers (particularly recently graduated operation, design or project engineers) interested in a specialization in energy transition

Objectives

Attendees will be able to implement the following skills:

- Grasp fundamentals of energy production in the context of energy transition
- Explain fundamental concepts underlying electricity production
- Analyze operating conditions and basic design of processes
- Describe the technology of static equipment and rotating machinery used in production facilities
- Identify main risks related to projects, including economics and societal
- Contribute to the dynamics of projects studies

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Numerous applications and illustrations
- Multiple teamwork sessions. Use of dynamic simulations and industrial case studies
- Numerous simulations performed using the PRO/II™ or HYSYS™ or UNISIM™ software
- Several tutorials with equipment in a workshop. Site/field visits

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including a presentation in front of a jury

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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ENERGY PRODUCTION & MANAGEMENT IN THE CONTEXT OF ENERGY TRANSITION — 5 days

Energetic worldwide context - Low carbon energy production.

NATURAL & BIOGAS PROCESSING — 10 days

Thermodynamics applied to hydrocarbons processing.
Gas processing.
Process design case studies using process simulation software.

TECHNOLOGY OF PRODUCTION FACILITIES & PROCESS EFFICIENCY — 10 days

Piping systems and process equipment, metallurgy, corrosion management.
Electrical systems, instrumentation, process control and safety instrumented systems.
Energy optimization and heat exchangers network.

ELECTRICITY PRODUCTION — 10 days

Gas turbines.
Power generator.
Offshore wind challenges.

ECONOMICS & PROJECT MANAGEMENT — 10 days

Fundamentals of contracts - Project profitability evaluation - Risk analysis of energy transition projects.
Project cost estimation and control.
Cost of energy: conventional and renewables (biogas, solar, wind), LCOE, grid parity...

PROCESS SAFETY MANAGEMENT — 5 days

Process hazard analysis: HAZID, HAZOP, plant layout...
Operating procedures, mechanical integrity, organizational elements.

SOCIAL & ENVIRONMENTAL IMPACT MANAGEMENT — 5 days

Societal consequences and problem linked to new energies development.
Communication challenges and constraints, managing the relationships with partners.

BIOGAS DEVELOPMENT PROJECT — 5 days

Teamwork on a biogas project using actual data.

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Training - Deepwater Drilling and Development

OFDW-EN-P

Face-to-face only

5 days

This 5-days course will be run over 4 days as there are public holidays. The entire program will be given, but the days will be extended

This course provides an in-depth, practical understanding of offshore drilling techniques, operations, equipment and procedures

Level

Skilled

Public

- Operator: drilling managers, engineers, supervisors
- Contractor: rig managers, tool pushers and drillers
- Other professionals involved or interested in deepwater drilling & development

Objectives

Attendees will be able to implement the following skills:

- Know about different offshore rigs
- Know about equipment specific to offshore drilling operations
- Understand the process of a subsea development

Pedagogical & technical resources

- Videos, animations
- Exercises
- Application to a real case (project) for the participants in the "Drilling & Completion Engineering" training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

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OFFSHORE SPECIFICITIES

Offshore rig description: jack up, anchored and dynamic positioning floating platforms.
Limits of use of the rigs.
Specific equipment for floating platforms.
Mud line suspension.
Subsea well head and equipment.
BOP, BOP closing unit, risers, positioning.
Subsea Xmas tree and equipment:

- General overview.
- Different types: vertical, horizontal.
- Comparison.
- Running procedures.
- Examples.

SUBSEA FIELD DEVELOPMENT

Chronology of operations with the different types of rigs.
Typical subsea development schematic:

- Tie back.
- Deepwater stand-alone development.
- Subsea field layout.
- Production control system.

Well architecture for deep-water well:

- Typical drilling.
- Casing programs.

TECHNOLOGIES IN USE FOR ENERGETIC TRANSITION

Hybrid-powered rig equipped with battery Energy Storage System (ESS) to reduce emissions.
Carbon emissions initiatives at offshore oil and gas installations by enabling access to clean power from shore or wind farm. Jet trenchers for power cables.
Utilization of production associated gas to power gas turbine to reduce the carbon footprint vs. flaring or venting emissions.
Expandable casing to reduce the amount of energy needed to drill the bore.

KNOWLEDGE ASSESSMENT

Sessions

Pau - From 04/26/2027 to 04/30/2027 **4420 €/HT**

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Training - Subsea Activities

OFF-EN-P | Face-to-face only | 9 days

This course provides technical knowledge on Oil & Gas subsea production systems

Level

Skilled

Public

Engineers and technicians whose activity is related to the design, construction and/or operation of Oil & Gas subsea production systems

Objectives

Attendees will be able to implement the following skills:

- Select the technology with the right criteria for the different equipment used for subsea production systems
- Select through typical subsea architecture and in particular in deep offshore
- Check installation techniques (with ROV, etc.)
- Manage main problems of flow assurance and prevention techniques

Pedagogical & technical resources

- Lectures carry numerous examples from ongoing upstream projects
- Each step of the course is illustrated by numerous examples taken from actual Oil & Gas construction activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: SUBSEA PRODUCTION SYSTEMS — 5 days

Subsea components and field architecture.
Subsea construction and intervention.
Inspection, maintenance and repair.
Operation from production platforms.

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MODULE 2: SUBSEA PIPELINES

4 days

Pipeline operation: main constraints.
Design of rigid pipelines and risers.
Flexible pipelines design.
Offshore pipeline construction.
Shore approach construction.
Trenching and protection.
Subsea tie-in methods.
Precommissioning and pigging.
Pipeline integrity.
Workshop.

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Training - Offshore Field Development - Pipelines and Flow Assurance

OFFSH-EN-P | Face-to-face only | 5 days

This course provides a deep understanding of offshore technology and techniques, with a particular emphasis on issues of flow assurance

Level

Knowledge

Public

Engineers and technicians involved in designing, constructing or operating Oil & Gas offshore production facilities

Objectives

Attendees will be able to implement the following skills:

- Understand the technology and design of offshore production facilities
- Grasp the architecture of offshore field developments, from shallow water to deep offshore
- Understand pipelines technology, laying techniques and main operational problems
- Learn the techniques used to prevent main problems of flow assurance

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous case studies from the offshore industry

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF OFFSHORE DEVELOPMENTS — 0.25 day

Constraints specific to offshore production.
Present performances and future perspectives. Technological barriers.

FIXED & FLOATING PRODUCTION STRUCTURES — 0.25 day

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Offshore production structures: jacket, semi-submersible, SPAR, TLP, FPSO...
Selection criteria. Limitations.
Terminology: shallow water, deep offshore, ultra-deep offshore.

CONSTRUCTION & INSTALLATION OF PLATFORMS — 0.5 day

Platform technology. Platform installation techniques.
Examples of shallow water developments.

DEEP OFFSHORE DEVELOPMENTS — 0.5 day

Typical subsea architecture: subsea wellheads, well jumpers, production manifolds, production lines, production risers, preservation lines, umbilicals.
Role and technology of each piece of equipment.
Examples of deep offshore developments.

FPSO/FSO TECHNOLOGY — 0.5 day

Technology of floating (production), storage and offloading vessels.
Ballast tanks. Atmosphere control.
Oil, methanol... Storage tanks. Blanketing system.
Storage tanks start-up procedures. Incidents.
Technology and operation of FSO/FPSO offloading (tanker loading) buoy.

OPERATION OF TERMINALS — 0.25 day

Technology of tankers and loading/offloading equipment.
Marine operations of reception and exports.
Terminal constraints: storage capacity, scheduling.

NEW DEEP WATER TECHNOLOGIES — 0.25 day

Overview of new deep-water technologies that are in R&D or pilot stages.

FLOW ASSURANCE 1/2: PREVENTION OF DEPOSITS IN FLOWLINES — 0.5 day

Main flow assurance problems: hydrates, paraffins, sulfates, sand, salt, naphtenates...
Main technical solutions and preservation operations. Intervention techniques.

FLOW ASSURANCE 2/2: MONITORING OF MULTI-PHASE FLOW THROUGH FLOWLINES — 1 day

Multi-phase flow patterns. Application to Oil & Gas upstream activities.
Gas dominated systems: dry versus wet scheme, flowline and slug catcher design.
Oil dominated systems: hydrodynamic slug flow, examples.

PIPELINES: TECHNOLOGY, LAYING & OPERATION — 1 day

Technology of pipelines: standards, material grades, insulation techniques.
Pipeline laying techniques (offshore and shore approach). Illustrations.
Pipeline operation and maintenance:

- Main flow assurance problems. Main available technical solutions.
- Pipe corrosion monitoring and prevention. Cathodic protection.
- Pipeline maintenance/maintenance management.

Sessions

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Rueil-Malmaison - From 10/12/2026 to 10/16/2026 **4360 €/HT**

Rueil-Malmaison - From 10/11/2027 to 10/15/2027 **4460 €/HT**

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Training - Oil and Gas Field Equipments

OGFE-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of onshore and offshore Oil & Gas technology and operating principles of surface production facilities equipment

Level

Knowledge

Public

Engineers and technicians interested in onshore and offshore Oil & Gas field technology and equipment

Objectives

Attendees will be able to implement the following skills:

- Detail the technology of main equipment
- Ascertain fundamentals of process control, draw a typical safety system layout
- Explain main metering techniques, corrosion issues, its prevention and monitoring

Pedagogical & technical resources

- Very interactive training by industry specialists
- Numerous applications and illustrations

Through our LMS, the following are shared or made available:

- Introductory content a few days before the virtual class, to save time and efficiency
- Training material, applications and additional content

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Complementary informations

This training corresponds to the second week of the training entitled “Field Processing and Surface Production Facilities” and can be delivered independently

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CASE OF OFFSHORE DEVELOPMENTS – FLOW ASSURANCE — 1 day

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Main flow assurance issues. Multiphase flow.
Case studies: gas condensate field development; deep-offshore production.
Offshore production structures: jacket, semi-submersible, spar, TLP, FPSO...
Storage and offloading vessels (FSO, FPSO, FPU, buoy...).
Deep offshore developments. Examples of subsea architecture. Flow assurance in (deep) offshore developments.
Main preservation techniques and pigging solutions.

ROTATING MACHINERY — 1 day

Fundamentals of pumping circuits and gas compression. Operating principles, technology, selection criteria, performances and operating conditions of centrifugal & volumetric pumps and centrifugal & reciprocating compressors. Gas turbines. Turbo-expanders.

THERMAL EQUIPMENT — 0.5 day

Heat exchangers, air coolers, furnaces: types, operation, technology.

FUNDAMENTALS OF CORROSION — 0.5 day

Different types of corrosion, prevention and monitoring.

ELECTRICAL SYSTEMS - INSTRUMENTATION & PROCESS CONTROL - SAFETY SYSTEMS — 1.5 days

Electrical power generation. Electrical power distribution network and equipment.
Field instrumentation; controllers; control loop structures: simple, cascade, split range.
Distributed Control System (DCS). Safety Instrumented Systems (SIS): Emergency ShutDown Systems ESD, High Integrity Pressure Protection System (HIPPS), fire and gas system.

METERING & ALLOCATION — 0.5 day

Importance of metering and production allocation. Production accounting & material balance. Introduction to material balances: liquid and gas balances. Transactional metering of liquids and gas. Multi-phase metering: advantage, principle and fields of application.

Sessions

Rueil-Malmaison - From 11/30/2026 to 12/04/2026 — **4360 €/HT**

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Training - Oil and Gas Field Processing

OGFP-EN-P | Face-to-face only | 5 days

This course provides a comprehensive overview of Oil & Gas field processing technology

Level

Knowledge

Public

Engineers and technicians interested, although not directly involved, in day-to-day Oil & Gas field processing operations: reservoir engineers, drilling and completion personnel, platform designers, petroleum architects, equipment suppliers, economists...

Objectives

Attendees will be able to implement the following skills:

- List main characteristics of Oil & Gas well effluents, assess problems induced by unwanted compounds
- Explain gathering network design and operations
- Detail field treatment of Oil & Gas streams and processes technology
- Grasp fundamentals of Oil & Gas field processing operations and related operating conditions
- Ascertain the treatment processes necessary for production water and injection water

Pedagogical & technical resources

- Course delivered by industry specialists
- Numerous applications and illustrations

Through our LMS, the following are shared or made available:

- Introductory content a few days before the virtual class, to save time and efficiency
- Training material, applications and additional content

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Complementary informations

This training corresponds to the first week of the training entitled “Field Processing and Surface Production Facilities” and can be delivered independently

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

WELL EFFLUENTS BEHAVIOR — 0.5 day

Different types of well effluent. Main characterization parameters.
Liquid-vapor equilibrium of pure substances and mixtures. Effluent behavior.
Constituents that pose problems for storage, transport or commercialization.
Main specifications to conform with and required treatments.

FUNDAMENTALS OF RESERVOIR & DRIVE MECHANISM — 0.25 day

Reservoirs: types, exploration techniques.
Drive mechanisms.
Enhanced Oil Recovery (EOR): aim and principle of the main techniques.

FUNDAMENTALS OF DRILLING, COMPLETION & WELL PERFORMANCE — 0.5 day

Drilling principle. Case of offshore drilling.
Main completion equipment.
Well performance. Needs for artificial lift: principle of artificial lift by pumping, gas lift...

CRUDE OIL PROCESSING — 1.25 days

Crude stabilization by Multi Stage Separation (MSS): election of the number of stages, effect of operating parameters, management of foam issues.
Crude dehydration and desalting. Emulsion treatment: operating parameters, internals, chemicals selection.
Crude sweetening (H2S removal).
Examples of oil treatment and associated gas compression process schemes.

PRODUCTION & INJECTION WATER TREATMENT — 1 day

Quality requirements for production water. Environment related constraints.
Main produced water treatments: API oil-water separators, plate separators, flotators, hydrocyclones...
Reasons for water injection.
Quality requirements and necessary treatments: chlorination, filtration, oxygen removal, sulfate removal.
Examples of process schemes for production and injection water treatment.

GAS PROCESSING & CONDITIONING — 1.5 days

Inhibition of hydrate formation: injection of MeOH, MEG, DEG, LDHI...
Gas dehydration (drying): TEG units, solid desiccants (molecular sieves) units.
Gas sweetening. Acid components (H2S and CO2) removal: amine units, molecular sieves, membranes. Natural Gas Liquids (NGL) extraction: use of cryogenic refrigeration, Joule-Thompson expansion, turbo-expander.
Fundamentals of Liquefied Natural Gas (LNG) chain.

Sessions

Rueil-Malmaison -	From 11/23/2026 to 11/27/2026	**4360 €/HT**
Rueil-Malmaison -	From 11/22/2027 to 11/26/2027	**4460 €/HT**

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Training - Operation, Maintenance and Inspection of Rotating Machinery

OMIRM-EN-P | **Face-to-face only** | **10 days**

This course provides key competencies related to rotating machinery operation and maintenance tasks

Level

Skilled

Public

Engineers, supervisors and technical staff involved in rotating machinery maintenance and technical inspection

Objectives

Attendees will be able to implement the following skills:

- Explain how to operate rotating machinery (pumps, compressors, steam turbines)
- Explain the key points for fluid flow and gas compression/expansion theory and practical applications
- List the key points for rotating machinery maintenance and inspection operations
- Explain how to achieve these operations
- List the main failure modes related to each here above listed rotating machinery
- Participate in the machinery reliability improvement process

Pedagogical & technical resources

- Interactive lecture
- Case studies based on industrial and actual feedback
- Practical work in workshops on actual equipment
- Use of dynamic simulators: pumps, compressors, steam turbines

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CENTRIFUGAL PUMPS — 2 days

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Main parts: casing, rotor, mechanical seals, bearings, coupling, auxiliary systems.
Fluid flow key points with a pumping system.
Operation: performance curves, flow control, start-up and shutdown, general troubleshooting.
Maintenance: assembly and dismantling procedures, main checks.
Typical defaults and failure modes.

RECIPROCATING & CENTRIFUGAL COMPRESSORS — 2 days

Main parts: casing, crankshaft/rotor, packings/mechanical seals, bearings, coupling, auxiliary systems.
Gas compression key points. Single and multistage compression.
Operation: performance curves, flow control, start-up and shutdown, monitoring, protection curves, general troubleshooting.
Maintenance: assembly and dismantling procedures, main checks.
Typical defaults and failure modes.

TURBINES & EXPANDERS — 1 day

Various types of turbines: steam and gas turbines, expanders. Typical applications.
Main parts: casing, rotor, seals, governors, bearings, coupling, auxiliary systems.
Gas and steam expansion: key points.
Operation: performance curves, speed and power control, start-up and shutdown, monitoring, overspeed protection, general troubleshooting.
Maintenance: assembly and dismantling procedures, main checks.
Typical defaults and failure modes.

LUBRICATION SYSTEMS MAINTENANCE/OIL ANALYSIS — 0.5 day

Purpose, different types of lubricants and lube systems.
Lubrication equipment maintenance: key points.
Oil analysis. Reports. Case studies.

BEARINGS MAINTENANCE — 1 day

Antifriction bearings: clearances/interferences assessments and checks, assembly procedures.
Sleeve and tilt pad journal and thrust bearings:

- Shaft rotation in an oil bearing.
- Clearances checks.
- Instrumentation checks and fitting procedures.
- Case studies.

COUPLINGS & ALIGNMENT — 0.5 day

Different types of couplings and related problems.
Various alignment methods, tolerances.

ROTORS & SHAFTS — 0.5 day

Balancing: API/ISO definitions, tolerances. Balancing methods.
Geometrical shaft checks.

RUPTURE MODES — 1 day

Rupture mechanisms.
Surface damage
Fatigue, wear and tear. Rupture face analysis.
Case studies.

USE OF VIBRATION ANALYSIS — 1.5 days

Different types of measurements and sensors.

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Typology of typical defaults affecting rotating machinery.
Spectrum analysis and various techniques for diagnosis.
Case studies.

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Training - Hydrocarbons Accumulations, Reserves Estimation, Risk Analysis and Uncertainties

OOIP-EN-P | Face-to-face only | 5 days

This course provides a practical understanding of hydrocarbon accumulations estimation and the methods to assess related uncertainties

Level

Skilled

Public

Geoscientists, petroleum and reservoir engineers interested or involved in hydrocarbon accumulations estimation

Objectives

Attendees will be able to implement the following skills:

- Define and discuss the difference between hydrocarbon accumulations and reserves
- Estimate hydrocarbon accumulations using the volumetric method
- Define the main concepts of risks and uncertainties and related main assessment techniques
- Apply both deterministic and probabilistic methods for estimating volumes in place and gain a thorough understanding of various uncertainties levels

Pedagogical & technical resources

- Interactive presentations and practical exercises
- Real case study using a complete data set and a spread sheet for uncertainties assessment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HYDROCARBON ACCUMULATIONS & RESERVES — 0.25 day

Definitions of accumulations and reserves.
Resources and reserves classification - PRMS.
Review of methods for estimating reserves: volumetrics, material balance, decline curves analysis, simulation

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models.

ESTIMATING HYDROCARBON ACCUMULATIONS - VOLUMETRIC METHOD 0.75 day

Overview of volumetric method.
Gross Rock Volume estimation from isobaths and/or geological models; contacts determination from logs and formation testing (RFT/MDT).
Porosity and Net-to-Gross estimation from logs; notion of cut off.
Saturation estimation from logs and cores.
Formation volume factor.
Exercises.

RISKS & UNCERTAINTIES 0.5 day

Definitions of risk and uncertainty.
Notion of probability and probability distribution.
Statistical description of data:

- Histograms and quantiles.
- Theoretical models: population, samples, probability density functions.
- Common statistical distributions.

REAL CASE STUDY - WORKSHOP 3.5 days

Correlation of reservoir layers in order to visualize the reservoir units.
Qualitative log interpretation of several wells.
Evaluation of Ht, Hu, ϕ and Swi on each well for each sub-reservoir unit.
Review of the available PVT studies (reports) and selection of the most reliable one to give the main characteristics of the reservoir fluids.
Calculation of the probable (P50) hydrocarbon volumes in place (calculation of rock volumes by using isobath maps).
Evaluation of the range of hydrocarbons in place (min & max) taking uncertainties into account with both deterministic and probabilistic methods (Monte-Carlo).
Synthesis and wrap-up.

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Training - Commissioning and Start-Up of Process Units

OPDEM-EN-P | Face-to-face only | 5 days

Prepare participants to manage commissioning and start-up operations

Level
Skilled

Public
Supervisors, engineers and technicians of oil/chemical companies or engineering, involved in the commissioning and start-up of new units

Objectives
Attendees will be able to implement the following skills:

- Present pre-commissioning, commissioning and start-up activities on a project from the perspective of their programming and management
- Specify the basis for supervising or delegating activities in a context of mastering the specific constraints related to these operations

Pedagogical & technical resources
Cases studies on the precommissioning, commissioning and start-up of typical units

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PROJECT BACKGROUND & COMMISSIONING PHASES — 2 days

Main phases of a project.
Engineering studies (FEED, Detail) and anticipation of commissioning activities.
Project contract type and impact on commissioning activities.
Integration of commissioning activities into the project process: mechanical completion, pre-commissioning, commissioning and start-up activities during the project steps.

ORGANIZATION — 1 day

Commissioning procedures. Interfaces with the different engineering disciplines according to the types of

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contract.
Plant/project breakdown into systems and subsystems. Execution plan for commissioning and start-up. Setting up of commissioning/start-up teams. Split of responsibilities. Preparation of the list of precedents. Start-up phases: pre-commissioning, commissioning and preparation for start-up, performance tests, provisional acceptance, mechanical guarantees, final acceptance. Hand over.

SAFETY — 0.25 day

Risks related to the auxiliary fluids and the introduction of hydrocarbons. Risk evolution between construction, commissioning and start-up. Control of the risks related to modifications during the different phases.
Pre-Start-up Safety Review (PSSR).

END OF CONSTRUCTION - PRECOMMISSIONING — 0.75 day

Precommissioning activities: static verification of equipment, hydraulic tests and equipment cleaning, involvement of operations in the mechanical completion, punch-list, actions follow-up and close out.

COMMISSIONING — 0.75 day

Commissioning activities. Cleaning, flushing, blowing and drying. Dynamic testing.
Synchronization of control loops and Programmable Logic Controller (PLC).

START-UP & ACCEPTANCE — 0.25 day

Start-up permit: checks required before oil-in. Leak tests, air removal, raw materials introduction.
Transition towards industrial production: performance tests, temporary and final acceptance, responsibility transfer.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
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Training - Turnaround Organization and Optimization

OTAU-EN-P | **Face-to-face only** | **5 days**

This course provides an overall strategy to achieve the main turnaround objectives: safety, deadline and budget compliance

Level
Skilled

Public
Engineers and staff (from maintenance, purchasing, project organization, and operation) involved in turnaround management for refining or petrochemical plants

Objectives
Attendees will be able to implement the following skills:

- Identify the steps of a rigorous methodology in preparing shutdown work
- List the points to be taken into account in the establishment, monitoring and analysis of a shutdown schedule
- Specify organizational and supervisory elements that make shutdown work effective
- Explain basic safety rules to be followed during shutdown work

Pedagogical & technical resources

- Numerous applications and cases studies
- An interactive delivery method that draws on participants' experiences
- Trainees mini-projects based on a standard plant

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TURNAROUND REQUIREMENTS — 1 day

Turnaround justification: local regulation, maintenance, projects, plant availability.
Turnaround frequency and objectives: schedule, safety compliance, duration and cost.
Typical data used for a turnaround: economic incentives, scope definition.

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Steering committee, organization and Key Performance Indicators. Financial breakdown and cost estimate.

TURNAROUND PREPARATION — 2 days

Detailed scope, work-list analysis.
Work preparation: tasks sequencing, procedures, long-term material and spare parts orders.
Critical operation identification and preparation.
Cost estimation.
Scheduling: overview, detailed planning and milestones.
Safety plan - Logistics.
Scope challenge: internal and external review.
Team building techniques.
Contracting policy: clear understanding of the different types of contracts: lump sum, reimbursable, unit rates.
Purchasing plan.
Contracting procedure.

SUPERVISION OF TURNAROUND ACTIVITIES — 2 days

Planning and quality control.
Cost control activities during works.
Management of changes and contingencies.
Mechanical completion, commissioning and start-up activities: acceptances certificates; organization.
Unplanned and additional works management.
Reporting and turnaround assessment.
Occupational health and safety. Lock-out/tag-out procedures.
Risks dealing with hot works, lifting, works at heights, scaffoldings, electrical, piping, high pressure cleaning, work in confined spaces.
Job safety analysis. Prevention plans and work permits: regulation, education, constraints. Responsibility of the personnel.

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Training - Bit and Drill String and Fishing while Drilling

OUTGARN-EN-P | Face-to-face only | 5 days

This course provides an in-depth theorical and practical knowledge of drilling bit, drill string and fishing techniques with its specific equipment

Level

Knowledge

Public

Young engineers and supervisors, toolpushers with some experience in drilling

Objectives

Attendees will be able to implement the following skills:

- Acquire the basic knowledge on the drilling bit and the drill stem
- Carry out basic calculations on the drill stem
- Choose a drill stem
- Use the different elements of the drill stem
- Learn about main techniques and equipment used to solve a fishing problem while drilling

Pedagogical & technical resources

- Course material (PPT, video)
- Individual and group exercises
- Visit of VAREL Europe manufacturer
- Instructor with a valuable experience in drilling operations
- Application to a real case (project) for the participants in the "Drilling and Completion Engineering" training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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BIT — 2 days

Bit different types and classification.
Bit use and drilling parameters.
Dull grading.
Bit nozzle selection.
Bit selection.
Visit of a Varel manufacturing unit.

DRILL STRING — 1.75 days

Distribution of stresses in the drill stem, neutral point.
Drill pipes: characteristics, limits of use, combination of stresses, buckling.
Drill collars: characteristics, profile, threading, choice of diameter.
Auxiliary equipment: Kelly, heavy weight drill pipes, stabilizers.
Drill string selection: first approach.
Margin of overpull, equiresistant drill string, necessary length of DC.

FISHING WHILE DRILLING — 1 day

Different problems found during drilling.
Causes for sticking.
Principles of the solutions to sticking.
Fishing equipment lost in the well, main tools used.
Avoiding sticking and losses of equipment in the wells.

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 03/22/2027 to 03/26/2027 — **4420 €/HT**

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Training - Rotating Machinery Vibration Analysis

PAVIB-EN-P | Face-to-face only | 4 days

This course assesses the cause and evolution of mechanical failures by analysis of vibration signals It emphasizes the implementation of an efficient predictive maintenance program

Level

Skilled

Public

Engineers, supervisors and technicians involved in the technical inspection and maintenance of rotating equipment

Objectives

Attendees will be able to implement the following skills:

- Identify the signals to be searched for a given mechanical fault and how to visualize them
- Implement devices to show characteristic images
- Identify vibration images representing a number of typical mechanical defects
- Implement a maintenance plan for each machine based on the criticality

Pedagogical & technical resources

- Study of industrial cases
- Various illustrations of actual systems
- Use a professional measurement tools & software and/or test benches
- The practical approach makes the course suitable for full-time vibration specialists

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC DEFINITIONS - OVERALL MEASUREMENTS — 0.75 day

Frequency and amplitude. Displacement, velocity, acceleration.
Different types of vibration: periodic, random, shocks.

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Overall measurements: limitations, severity charts, high frequency techniques for anti-friction bearings, practical recommendations.

RESONANCE — 0.5 day

Simple system behavior: amplitude and phase. Actual rotor and bearings systems. Critical speeds.
Using phase to study resonance. Identifying and solving problems.

TOOLS FOR DIAGNOSIS — 0.5 day

FFT analyzers: Fourier transforms and actual plots. Accelerometers, fixation methods.
Selecting analysis parameters: scales, units, windows. Using special functions: zoom, cepstrum, envelope detection.
Using non-contacting probes for monitoring large machinery running on plain or tilt-pad bearings.

MACHINERY DEFECTS & VIBRATION SIGNATURE — 2 days

Unbalance. Shaft and coupling misalignment.
Antifriction bearings - Typical defects.
Plain or tilt pad bearings instabilities.
Mechanical looseness, cracks, friction between rotor and static parts. Gear failures.
Electromagnetic defects of induction electric motors.
Drive belt vibration.

PRACTICAL MACHINERY VIBRATION MONITORING — 0.25 day

Vibration control policy: machinery improvement program. Different policies according to the type of machinery and its criticality.
Developing an effective program.

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Training - Practical Aspects of Well Construction and Planning

PAWPCE-EN-P | Face-to-face only | 10 days

This course provides a comprehensive overview of all steps that should be taken to properly plan and budget Oil & Gas exploration or development wells, from pre-planning with geoscientists all the way to the well delivery for production or testing

Level

Knowledge

Public

Professionals involved in drilling operations and interested in well construction & planning for Oil & Gas, geothermal and storage wells (i.e. drilling & completion engineers, mud engineers, supervisors, drilling contractor personnel)

Objectives

Attendees will be able to implement the following skills:

- Optimize and review the different parameters involved in oil or gas well planning
- Identify major concerns and plan for dealing with them
- Apply procedures and methods for designing oil or gas wells and preparing drilling programs
- Learn how to estimate drilling time and costs, along with corresponding margins of error
- Recognize the importance of effective well engineering and planning

Pedagogical & technical resources

- Interactive course with practical exercises using the Drilling Data Handbook
- Videos and animations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL OBJECTIVES & INPUTS TO THE DRILLING PROGRAM — 0.25 day

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Typical objectives and inputs to an exploration or/and a development well program.
Pore and fracturation pressure evaluation.
Criteria to consider for the well design.

CASING DESIGN: SHOE POSITIONING — 0.5 day

Swab and surge considerations, kick tolerance, hypothesis selection.
Selection of mud weights, additional constraints, exercises with different hypothesis.

CASING DESIGN: CASING SELECTION — 1.5 days

Physical and mechanical properties of casings and casing connections.
Casing string calculation, selection.

WELLHEAD DESIGN & SELECTION — 0.25 day

Different wellheads in onshore and offshore environments.
Wellhead and BOP selection.

BITS PROGRAM — 0.75 day

Different types of bits, bit selection: bit records, cost per foot, bit hydraulics.
Exercises.

DRILL STRING, COMPONENTS & SELECTION — 0.75 day

Drill string components.
Characteristics and limit of use.
BHA and drill pipe selection.
Exercises.

MUD & CEMENT PROGRAM — 1.5 days

Drilling fluid types and characteristics, mechanical treatment equipment.
Selection of mud program according to the well construction criteria.
Cementing technology and procedures, cement and slurry design.
Cementing program, cementing quality control.
Exercises.

FORMATION EVALUATION PROGRAM — 0.5 day

Open hole-logging tools (GR, resistivity, density, neutron, sonic).
Quick look exercise.

DEVIATED WELLS DESIGN: DIRECTIONAL DRILLING METHODS & TECHNOLOGY — 1 day

Directional drilling tools and technology, directional program.
Trajectory planning coordinates systems.
Trajectory calculation methods, uncertainty evaluation, anti-collision.
Drill string selection.

RIG SELECTION — 0.5 day

Main drilling rig functions.
Types of rigs, rig selection criteria.

STUCK PIPE — 0.5 day

Borehole stability, causes of stuck pipes and first actions.
Warning signs and method to free pipes, preventive measures.

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WELL COMPLETION 1.25 days

Different ways to complete the well.
Sand control, stimulation.
Tubing, packer, safety valve selection.
Well intervention: wireline, coiled tubing, snubbing, workover.

TECHNOLOGIES IN USE FOR ENERGETIC TRANSITION 0.5 day

Geothermal Wells and their thermal cyclic, casing strength at high temperature, corrosion resistance.
Underground storage well architecture guidelines for liquid, gaseous hydrocarbons, hydrogen and compressed air, as well as for aquifer and depleted reservoir storage facilities.
Expandable casing to reduce the amount of energy needed to drill the bore.

TIME ESTIMATE & PROVISIONAL PROGRESS CURVE 0.25 day

Typical rig times required for the different operations, contingencies.
Progression curve.
Cost estimation according to the environment (type of well, rigs).

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Training - Upstream Budget Practice

PBA-EN-P | Face-to-face only | 5 days

To allow the participants to go through the full budgetary process from information gathering to budget presentation

Level
Skilled

Public
Upstream professionals who need to fully master the E&P budgeting process

Objectives
Attendees will be able to implement the following skills:

- To list the required information for the budgeting process
- To draft the required financial statements
- To set up monitoring and performance parameters

Pedagogical & technical resources
Budget preparation, set up and presentation through workshop practice with a subject-matter expert

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PURPOSE & REQUIRED FINANCIAL STATEMENTS — 1 day

Purpose of the budgetary process.
Main characteristics of the financial statements required for budget preparation.
Projected balance-sheet.
Projected income-statement.
Projected uses and sources of funds.

LISTING PROCESS FOR REQUIRED INFORMATION COLLECTION — 1 day

Type of required information.
Related company departments.

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Data collection methodology.
Data collection.

FINANCIAL STATEMENTS DRAFTING & BUDGET — 2 days

Financial statements drafting.
Main data consolidation.
Budget presentation report preparation.

BUDGET MONITORING & CONTROL — 1 day

Monitoring indicators preparation.
Whistleblower signals.

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Training - Basics in Fluid Flow - E-Learning

PC1E-EN-E | E-Learning | 2 hours

This e-learning module provides basic information on fluid flow basics These modules are integrated into some of our Blended Learning courses but can also be followed independently For any information please contact us at the following address: contact@ifptraining.com

Level

Skilled

Public

All professionals, interested in pump design, operation, maintenance, troubleshooting

Objectives

Attendees will be able to implement the following skills:

- list the main principles to keep in mind regarding fluid flow

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FLUID FLOW FOR PUMPS

Energy units, friction losses calculation, system curve assessment, operating point control with system curve control.

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Training - Basics in Centrifugal Pump Technology - E-Learning

PC2E-EN-E | E-Learning | 2 hours

This e-learning module provides basic information on centrifugal pump technology These modules are integrated into some of our Blended Learning courses but can also be followed independently For any information please contact us at the following address: contact@ifptraining.com

Level

Skilled

Public

All professionals, interested in pump design, operation, maintenance, troubleshooting

Objectives

Attendees will be able to implement the following skills:

- specify the main parts of a centrifugal pump

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CENTRIFUGAL PUMP TECHNOLOGY

Single stage centrifugal pump presentation, multistage centrifugal pump presentation.

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Training - Centrifugal Pumps and Positive Displacement Pumps

Applications with CORYS dynamic simulator

PC-EN-P | Face-to-face only | 4 days

This course covers the centrifugal and positive displacement pumps technology and their operating conditions

Level

Skilled

Public

Engineers and technicians involved in centrifugal and positive displacement pump operation, maintenance or engineering

Objectives

Attendees will be able to implement the following skills:

- Explain the operation and operation of centrifugal pumps and technical solutions
- Identify potential incidents on these machines
- Pre-select and size a centrifugal pump

Pedagogical & technical resources

- Actual examples from the refining, petrochemical and chemical industry
- Active participation is encouraged through case studies
- Use of a centrifugal pump dynamic simulator
- E-learning session previously to the presential one

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HYDRODYNAMICS APPLIED TO A PUMPING SYSTEM — 1.5 days

Pump performance:

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- Flow in a pump, velocities triangle, internal flow and energy losses.
- Theoretical and practical head: characteristic curve.
- Other characteristics: efficiency, power, NPSH required.
- Changes in characteristics vs. rotation, viscosity, impeller shape, cavitation.

Pipe system:

- System curve, resistance of flow and throttling control.
- Operating point: normal and maximum capacities, change in fluid characteristics and incidence on operating conditions.

Exercises with a dynamic simulator.

CENTRIFUGAL PUMP TECHNOLOGY & SELECTION 1.5 days

Centrifugal pump:

- Impeller and pump shape, suction operating conditions.

Mechanical seal:

- Selection according to API 682 standard and type.
- Friction face heating.
- Safety and environment: typical arrangements (single, dual, dry seal).
- Specific solutions: canned motor pump, magnetic drive pump.

Installation:

- Suction and discharge pipe design.
- NPSH available; base plate and grouting.
- Ancillary lines and equipment.
- Coupling and driven machines.
- Safety and environment.

POSITIVE DISPLACEMENT PUMP TECHNOLOGY & PERFORMANCE 0.5 day

Technology: different types of pumps (rotary and reciprocating pumps). Operation and performance of the different types of pumps.
Influence of clearance, internal leaks, nature of product on flow rate and pressure. Flow rate control.
Installation guidelines: position of tanks, line diameters, metering drums, pulsation dampeners, pressure valves.

PUMP OPERATION 0.5 day

Preparation: filling and draining. Start-up/shutdown: priming, hammer shock, risks to the process and the pump.
Monitoring parameters (vibration levels, noises, bearing housing temperature, motor intensity, pressures).
Parallel and serial operation. Safety conditions.
Reliability: types and source of failures (wear, ruptures, cavitation, leakages); improvement methods.
Exercises with dynamic simulator.

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Training - E&P Project Control Tools

PCGB-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of the techniques used to control a project.

Level

Skilled

Public

Professionals who have already occupied a position within a project task force and need to understand the fundamental project control processes.

Objectives

Attendees will be able to implement the following skills:

- Specify scope and interfaces of the project control function
- Apply different methods and tools related to project control
- Identify areas of concern and propose a corrective action plan

Pedagogical & technical resources

- The course is illustrated by numerous examples taken from actual Exploration & Production projects
- A project case study is used stage-by-stage while constantly comparing the standpoints of the company and the contractor

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Provide evidence of a professional experience of at least 1 month, related to the concerned field.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PROJECT CONTROL FRAMEWORK — 1 DAY

Project control process map. Project scope and execution strategy. Project control plan implementation.

SCHEDULE — 1.5 DAYS

Schedule planning and development. Progress and performance measurement. Assess schedule and resource performance.

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COSTS — 1.5 DAYS

Cost estimating and budgeting. Resource planning. Project cost accounting. Assess cost performance. Forecasting.

VALUE ANALYSIS & RISKS — 0.5 DAY

Value analysis and engineering.
Risk management. Assess risks factors.

PERFORMANCE ASSESSMENT & CHANGES — 0.5 DAY

Assess work process and productivity.
Report project performance assessment.
Change management.

Sessions

Rueil-Malmaison -	From 10/05/2026 to 10/09/2026	**4360 €/HT**
Rueil-Malmaison -	From 10/04/2027 to 10/08/2027	**4460 €/HT**

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Training - Progressing Cavity Pump

PCP-EN-D | Distance only | 5 days

This course provides a comprehensive knowledge and know-how of Progressing Cavity Pump Equipment & operation. To identify and troubleshoot most common operations issues.

Level

Knowledge

Public

Completion, Artificial lift or petroleum engineers & technicians.

Objectives

Attendees will be able to implement the following skills:

- Explain eruptive or assisted well dynamics, and the operating principles of downhole and surface equipment
- Know the PCP principle, main components and their functions
- Understand installation procedures
- Ensure a proper monitoring and troubleshooting

Pedagogical & technical resources

- Very interactive training by industry specialists
- Numerous teamwork exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HYDROSTATICS & WELL DYNAMICS — 1 day

Pressure Gradient. Condition for eruptive well:

- Fundamentals of fluid flow. Pressure drop/skin effect.

Wells activation method, operating principle:

- Evolution of reservoir parameters.
- Common activation methods.

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- Comparison and selection of activation methods.

PROGRESSING CAVITY PUMP PINCIPLE — 0.5 day

Moineau principle theory.
PCP advantages.
PCP Parameters.
Operating a PCP.

PROGRESSING CAVITY PUMP EQUIPMENT — 1 day

PCP range of pump: Rotor & stator geometry, characteristics & failure modes.
Tubing string.
Rod string.
Downhole accessories.
Surface equipment (Drive Head, VSD).
Installation tools.
Elastomers: properties, limits in use for oil & gas application, selection & failure analysis.

PCP SLECTION GUIDELINES — 1 day

PCP selection check list.
Downhole Equipment Sizing.
Surface Equipment Sizing.

PCP INSTALLATION PROCEDURES — 1 day

Check list.
Stator and Rotor installation.
Space out.
Drive head Installation.
Troubleshooting & Analysis.

CASE STUDY — 0.5 day

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Progressing Cavity Pump

PCP-EN-P

Face-to-face only

5 days

This course provides a comprehensive knowledge and know-how of Progressing Cavity Pump Equipment & operation. To identify and troubleshoot most common operations issues.

Level

Knowledge

Public

Completion, Artificial lift or petroleum engineers & technicians.

Objectives

Attendees will be able to implement the following skills:

- Explain eruptive or assisted well dynamics, and the operating principles of downhole and surface equipment
- Know the PCP principle, main components and their functions
- Understand installation procedures
- Ensure a proper monitoring and troubleshooting

Pedagogical & technical resources

- Very interactive training by industry specialists
- Numerous teamwork exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

HYDROSTATICS & WELL DYNAMICS — 1 day

Pressure Gradient. Condition for eruptive well:

- Fundamentals of fluid flow. Pressure drop/skin effect.

Wells activation method, operating principle:

- Evolution of reservoir parameters.
- Common activation methods.

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- Comparison and selection of activation methods.

PROGRESSING CAVITY PUMP PINCIPLE — 0.5 day

Moineau principle theory.
PCP advantages.
PCP Parameters.
Operating a PCP.

PROGRESSING CAVITY PUMP EQUIPMENT — 1 day

PCP range of pump: Rotor & stator geometry, characteristics & failure modes.
Tubing string.
Rod string.
Downhole accessories.
Surface equipment (Drive Head, VSD).
Installation tools.
Elastomers: properties, limits in use for oil & gas application, selection & failure analysis.

PCP SLECTION GUIDELINES — 1 day

PCP selection check list.
Downhole Equipment Sizing.
Surface Equipment Sizing.

PCP INSTALLATION PROCEDURES — 1 day

Check list.
Stator and Rotor installation.
Space out.
Drive head Installation.
Troubleshooting & Analysis.

CASE STUDY — 0.5 day

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Properties, Formulation, Transfer and Storage of Petroleum Products

PCTS-EN-P | **Face-to-face only** | **8 days**

From the properties of the finished products, this training provides a deeper knowledge on petroleum products formulation, storage and transfer between different sites

Level

Skilled

Public

- Operation staff (field operators, panel operators, supervisors...) in reception, blending, storage and shipping facilities in refineries and petrochemical plants
- Anyone involved in petroleum products transfer and storage management

Objectives

Attendees will be able to implement the following skills:

- List key characteristics of crude oils, cuts, bases and finished products
- Apply mixing and manufacturing rules for finished products
- Calculate operating parameters of gravity and pumping transfers
- Recognize equipment from atmospheric storage tanks
- Identify risks for safety, equipment and accounting in storage operations and develop measures appropriate to control such risks

Pedagogical & technical resources

- Usage of many pictures and video for equipment understanding. Field visit if possible to be organized
- Case studies based on industrial situations: products transfers, products formulations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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PROPERTIES OF CRUDE OIL & PETROLEUM PRODUCTS — 2.75 days

Crude oils: main constituents, properties, initial fractionation in petroleum cuts.
Petroleum products:

- LPG, gasoline, jet fuel, Automotive Diesel Oil, heating oil, heavy fuel oils, bitumen.
- Main specifications, manufacturing constraints, storage and safety specificities.
- Evolution of product specifications.

Bases and alternative fuels: ethanol, ETBE and FAME.

MANUFACTURING OF PETROLEUM PRODUCTS — 1.25 days

Bases manufacturing from petroleum cuts: petroleum products manufacturing scheme, simplified process diagrams of refineries and petrochemical units.
Finished products manufacturing:

- Theory and process for blenders: on-line optimization manufacturing, additivation.
- Economic aspects (give-away, added profit).

TRANSFER & TRANSPORT OF PETROLEUM PRODUCTS — 1.75 days

Transfer by gravity: characteristics of gravity flow.
Transfer by pumping:

- Performance of centrifugal pumps, simplified technology and adaptation to pumping circuits.
- Operation of centrifugal pumps, start-up, shutdown, installation in series and parallel implementation.
- Operation and simplified technology of volumetric pumps.
- Operation of a transfer installation: practical and economic aspects, risks of vaporization, pressure surges, etc.
- Transfer of crude oil and petroleum products by ship.

Application: study of transfer from one tank to another.

STORAGE OF PETROLEUM PRODUCTS — 2.25 days

Storage equipment:

- Pressurized and refrigerated tanks, spheres, cylindrical tanks, cryogenic tanks, cavities; ancillary equipment: safety valves, hydraulic safety valves.
- Fixed roof tanks: different types, vents, justification and limits of vent valves.
- Floating screen tanks: special features, justification.
- Floating roof tanks: different types of roof and seals, supporting legs, rainwater drainage.
- Protection against fire risks.

Tank operation:

- Operational safety: risks of inflammation, static electricity, pyrophoric substances, emulsions, overflow, toxic products.
- Heating. Mixing.
- Measuring the quantities delivered, stored and shipped: manual and remote gauging, measuring the temperature locally and remotely, volumetric and dynamic meters, manual and automatic sampling.
- Usual operation of storage tanks including emptying, degassing and decommissioning.

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Training - Petroleum Refining and Petrochemicals

PETREF-EN-P | Face-to-face only | 85 days

This training aims at developing competencies in processes, equipment, operation, safety, and the economical aspects of petroleum refining and petrochemicals

Level

Knowledge

Public

Engineers entering the refining and petrochemical industries or professionals with limited industry experience wishing to broaden their knowledge

Objectives

Attendees will be able to implement the following skills:

- Understand the basics of refining techniques
- Analyze the performances of the processes concerned, and optimize them
- Select and design the main equipment of processing plants
- Comprehend the technology and operation of equipment
- Understand the main refining processes, their fundamental aspects and operation
- Recognize safety and environmental issues in operation of such units
- Explain economic industry issues

Pedagogical & technical resources

- Case studies and applications related to industrial situations
- Dynamic simulators (CORYS IndissPlus simulators): equipment simulators and generic process units simulators
- Project: design of a distillation column using PROII/PROVISION

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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PHYSICO-CHEMICAL PROPERTIES OF HYDROCARBONS & PETROLEUM CUTS — 5 days

Organic compounds, crude oil and petroleum products.
Quality control - Standard tests - Blending rules.

APPLIED THERMODYNAMICS — 5 days

Properties of pure substances.
Fluid properties: liquid-vapor equilibria of hydrocarbons mixtures, of non-ideal mixtures, of non-identified components.
K values from modern numerical methods.

DISTILLATION COURSE & PROJECT WITH PROII — 10 days

Classical industrial column design, short cut methods.
Operating parameters, optimization, process control parameters.
Internal equipment.
Practice of PROII/PROVISION, process simulation, simplified design of equipment, economic evaluation and optimization.

HEAT TRANSFER EQUIPMENT — 5 days

Heat transmission.
Heat exchangers: sizing and performances, operation.
Furnaces and boilers: performances, operating conditions, combustion, operation, safety.

FLUID FLOW - ROTATING MACHINERY — 10 days

Characteristics of liquid and gas simple phase flow; gas compression laws, expansion.
Technology and operation of pumps, compressors, steam turbines, gas turbines, electrical motors.

INSTRUMENTATION & PROCESS CONTROL — 5 days

Instrumentation, controllers, valves, control loops implementation.
PID tuning, monovariable control limits, multivariable control.

REFINING PROCESSES - PRINCIPLES & OPERATION — 20 days

Characteristics of feeds and products, principles of the processes used, operating and control parameters of the unit, analytical follow-up, typical incidents, concerning the following refining units:

- Atmospheric and vacuum distillation of crude oil, Catalytic reforming, isomerization, hydrotreatment, sweetening of light cuts and sulfur recovery.
- Conversion of heavy cuts and related units: visbreaking, coking, FCC, RFCC, distillate hydrocracking, residue hydrocracking.
- Base oil refining.

PETROCHEMICAL PROCESSES - PRINCIPLES & OPERATION PRODUCTION OF OLEFINS & AROMATICS — 12 days

Production of olefins and aromatics:

- Sources, outlets and main industrial uses of olefinic and aromatic intermediaries.
- Steam cracking and treatment of the cuts produced.
- Fluid catalytic cracking (FCC) and production of aromatics.
- Economics of petrochemicals.

Production of convenience polymers (PP, PE, PS, PVC, PET):

- Nature and types of polymers.

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- Implementation principles and techniques.

Production of syngas:

- Main processes: steam reforming, partial oxidation (POX).
- Valuation of synthesis gas: combined cycles.

SAFETY - UTILITIES - ENVIRONMENT IN OPERATION — 8 days

Process safety:

- Product and equipment related risks, safety in process operation.
- Hazard analysis in design and operation.

Utilities:

- Steam networks.
- Electricity generation and networks.
- Production and distribution networks for air, fire and cooling water; flare.

Environmental control:

- Air pollution sources, detection and technologies for reduction.
- Sources of aqueous pollution; wastewater treatment, regulation and controls.

PETROLEUM ECONOMICS — 5 days

Evolution of the demand for derived products, international oil markets.
Short-term refinery management.

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Training - Production of Base Chemicals and Commodity Polymers

PETRO-EN-B | Blended-Learning | 4 days

This course provides a technical information of the main processes used to produce olefins and aromatics along with a comprehensive information on polymers and polymerization processes, and technologies available mainly in the polyolefins field

Level

Knowledge

Public

- Professionals, in the oil or petrochemical industry, interested in olefins, aromatics and polymers processes
- Specifically for engineers and technical staff who are beginners in this industry, as well as subcontractors, traders, etc

Objectives

Attendees will be able to implement the following skills:

- Describe the origins and main uses of petrochemical bases: Ethylene, propylene, butadiene, benzene, para-xylene
- list the main units producing these 5 bases

Pedagogical & technical resources

- This course can be adapted for distance learning
- Detailed course material
- Pictures of main equipment and samples

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

E-LEARNING: HYDROCARBONS - DISTILLATION - CATALYSTS - POLYMERS

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MODULE 1 - HYDROCARBONS - TYPES & IMPURITIES

Composition of crude oils.
Hydrocarbon groups and composition of petroleum products.
Crude oil impurities.

MODULE 2 - DISTILLATION PROCESS

Flash of a hydrocarbon mixture.
Principles of continuous distillation.
Industrial features of the distillation process.

MODULE 3 - INTRODUCTION TO CATALYSTS

Catalytic action.
Industrial applications.
Catalytic reactors examples.

MODULE 4 - POLYMERS

Introduction to polymers.
Polyethylene.
Polypropylene.

CLASSROOM TRAINING (4 DAYS)

STEAMCRACKING & TREATMENT OF THE CUTS PRODUCED 1.75 days

Steamcracking:

- Implementation of cracking reactions: furnaces, quench systems, primary separation.
- Yields, operating variables affecting the severity of treatment, influence of the feedstock nature.

Compression and purification of the cracked gases:

- Implementation of compression.
- H2S and CO2 removal by caustic washing.
- Gas drying by adsorption.
- Cooling: propylene and ethylene chilling cycles, cold box.

Separation and treatment of steam cracker effluents:

- Steamcracker effluent separation train, main characteristics and purifications of the cuts: selective hydrogenations of acetylene from the C2 cut, of propyne and propadiene from the C3 cut, removal of carbon monoxide.
- Treatments of the C4 cut: production of 1,3- butadiene, recovery of isobutene from raffinate, upgrading of 1-butene in raffinate 2...
- Upgrading of pyrolysis gasoline production of motor fuels, benzene and other aromatics recovery.
- Alternative olefins production.

PRODUCTION OF AROMATICS 0.5 day

Analysis of the catalytic reforming process, implementation of the catalyst, yields, operating variables.
Associated processes: hydrodealkylation, isomerization...
Treatment of cuts produced in those transformation processes:

- Aromatics and non-aromatics separation processes: liquid-liquid extraction, extractive distillation.
- Aromatics separation processes: distillation, adsorption, crystallization, application to paraxylene.

Aromatic complex arrangement. Highlighting of the aromatic loop.

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CATALYTIC CRACKING FCC — 0.25 day

Analysis of FCC process: nature of the feedstock, implementation of the catalyst and principle of reactor and regenerator set.
Composition and treatment of cracked gases.
Modification of the process for maximization of light cuts C3 & C4 production.
FCC dedicated processes for maximizing the production of C3 and C4 light olefins.

ON PURPOSE PROPYLENE PROCESSES — 0.25 day

Technical-economic context.
Processes for metathesis, propane dehydrogenation (PDH), methanol to olefins (MTO and MTO-OCP) and methanol to propylene (MTP), light olefin cracking (LOC).
Comparison of technologies - Selection criteria.

POLYMER PRODUCTION - ASSOCIATED PROPERTIES — 0.5 day

Type of reaction and basic characteristics of polymer reactions: polyaddition, polycondensation, heat of reaction, activation mode, etc.
Different arrangements of monomer building blocks in polyaddition: atactic, syndiotactic or isotactic polymers; random; block; graft polymers and others.
Relationship between end uses implementation and main polymer properties. Impact on properties.
Main tests used to get polymer characterization: melt index, viscosity index, etc. Test signification, relationship with polymer structure.
Consequences regarding polymer implementation techniques (extrusion, injection, etc.).

POLYMERIZATION IMPLEMENTATION - MAIN COMMODITY PLASTIC PROCESSES — 0.75 day

Techniques implemented to produce polymers: solution, bulk, emulsion, suspension, gas phase techniques.
Advantages and drawbacks of those different techniques consequences on processes implementation.
Examples applied to main processes used to manufacture major thermoplastics: polyethylenes (PE), polypropylenes (PP), polystyrenes (PS) and polyvinylchloride (PVC).
Flow charts and principles of processes. Some common and average operating conditions.
Influence of operating parameters (temperatures, pressures, monomers ratio and proportion of any chemicals involved in the reaction) regarding the quality of polymer obtained.
Some pretreatments of polymers outside the reactor before the transformation step.

Sessions

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Training - Introduction to petrophysics

PETROF-EN-P | Face-to-face only | 5 days

This course provides an in-depth understanding of petrophysics, covering concepts as well as data measurements and analysis and insight into modeling

Level

Awareness

Public

- Newly hired and 2- to 3-year experienced reservoir engineers willing to deepen their knowledge in reservoir rock properties and petrophysics.
- Geoscientists, petroleum engineers and production engineers moving towards reservoir engineering

Objectives

Attendees will be able to implement the following skills:

- Discuss main concepts of petrophysics used in the description of reservoirs rock properties
- Describe and discuss the way the corresponding rock properties are accessed from cores
- Perform basic quick-look log interpretation and discuss the corresponding rock properties by respect to core analysis

Pedagogical & technical resources

Interactive lectures and hands-on exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

RESERVOIR PROPERTIES FROM CORE ANALYSIS — 2,5 jours

Introduction to coring.
Porosity; definitions and measurements (effective and total porosity).
Monophasic permeability:

- Darcy's law and definition of permeability.
- Measurement of monophasic permeability. Klinkenberg correction.

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Capillary pressure:

- Definition and measurement.
- From lab to reservoir: capillary pressure and initial fluid saturations in the reservoir.

Wettability:

- Definition and measurement (Amott index, USBM index).
- Influence of wettability on capillary pressure.

Effective and relative permeability:

- Darcy's law for diphasic flows; definition of effective and relative permeability.
- Influence of wettability on the relative permeabilities.
- Special core analysis and relative permeability measurements.

RESERVOIR PROPERTIES FROM LOG EVALUATION - QUICK-LOOK INTERPRETATION — 2,5 jours

Introduction to wireline logging operations and logs.
Open-hole log quick-look interpretation methodology.
Determination of reservoir properties from log interpretation (non-reservoir and reservoir zones, porosity, contacts, Archie's law and saturations).

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Training - H2S Removal and Sulfur Recovery Processes

PFCS-EN-P | **Face-to-face only** | **3 days**

This course provides a deeper understanding of the operation and the monitoring, including HSE considerations, of common processes for elimination of H2S and for sulfur recovery

Level
Skilled

Public
Engineers and supervisors involved in operating, troubleshooting, optimizing or revamping sour gas treatment and sulfur recovery facilities

Objectives
Attendees will be able to implement the following skills:

- Identify environmental issues related to sulphur impurities
- List operating parameters of sulphur treatment units
- Specify rules of conduct to optimize processes

Pedagogical & technical resources

- Use of a dynamic simulator for amine and Claus units to simulate operating conditions
- Parts of or the whole session customizable to a virtual remote classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF SULFUR REMOVAL & RECOVERY — 0.25 day

Amine washing and sulfur recovery units role in refineries.
Nature, origins and compositions of the streams to be treated, ammonia content.
Determination of the sulfur balance for a typical refinery.
Environmental aspects, treatment justification.

AMINE UNITS — 0.75 day

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Chemical reaction between amines and H2S.
Process flow sheet and equipment review: absorption, regeneration, pumps and filtration.
Process control: pressures, temperatures, amine solution optimization, steam flowrate to regenerator optimization.
Regeneration quality: objectives, follow-up methods, and performance impacts.
Troubleshooting: amine solution degradation, foaming, corrosion, washing quality follow-up.
Safety issues.
Application: what you can learn from your amine analysis (routine and detailed).

SULFUR RECOVERY UNITS — 1 day

Chemical reactions: required and undesired ones, thermodynamics and kinetics.
Process flow sheet: thermal stage, catalytic stage, sulfur recovery, tail gas incineration. Operating parameters and impact on sulfur yield.
Process control: H2S/SO2 ratio control, air flowrate optimization, tail gas analyzer, warming up techniques and temperature control at the converters.
Troubleshooting: hydrocarbons presence, sulfur behavior as per temperature, H2S degassing from sulfur product, safety.
Shutdown situations and consequences, safety issues, ISS.
Use of a dynamic simulator to illustrate the impact of parameter changes.

TAIL GAS CLEAN-UP PROCESSES — 0.75 day

Process flow schemes: sub-dewpoint Claus or amine route.
Operating parameters and impact on process and sulfur yields.
Influence of the H2S/SO2 ratio.
Sources of usual operation troubles for each process: improper regeneration, catalyst ageing...
Impact on the CLAUS unit optimization.

SOUR WATER STRIPPER OFF-GAS TREATMENT — 0.25 day

Sour water characteristics. Ammonia content. Ammonia conversion and NOx monitoring.
Principle, main equipment, operating parameters, water quality follow-up.

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Training - Process Engineering - Equipment Sizing

PIDE-EN-P | Face-to-face only | 5 days

This course provides an overview of Oil & Gas projects engineering studies, from conceptual design to detail drawing

Level
Skilled

Public
Process engineers

Objectives
Attendees will be able to implement the following skills:

- List the various aspects of project engineering to be applied in real cases
- Be able to work with PID schemes

Pedagogical & technical resources

- Lectures with exercises
- Project by team (2 or 3 students): conception of a PID scheme from a PFD
- Specific and detailed documentation, industrial examples

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
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Program

PROJECT DEFINITION — 0.5 day

Definition of the different type of projects.
Planning, description of the different project steps.
Organization: task force or conventional.
Departments description and role: purchasing, cost control, planning, engineering, construction...
Relation between client and contractor: progress report, change order...

ENGINEERING DIAGRAMS (PID'S) — 2 days

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Process flow schemes: purpose, available information.
General rules for the PID's conception:

- PID's importance during the contract.
- Milestones: PID's review...
- Potential development, "clever PID's".

Study of the PID's by splitting them in elementary parts (each part is made of one or several equipment): fractionation column, furnace, reactors, compressors...; piping; regulation, instrumentation will be studied in each part.
Safety elements: safety valves, valve action per air failure.
Utilities, start-up and shutdown piping: steam/condensate networks, hot oil, drain systems.
Other auxiliary piping: off-spec., start-up and shutdown piping.

ENGINEERING RULES & STANDARDS — 2 days

Units and conversion factors.
Hydrocarbon properties.
Equipment design rules: rotating machines (compressors, pumps...); thermal equipment (furnaces, heat exchangers); storage tanks; pressure vessels.
Piping design as per the fluid inside: gas, subcooled liquid, boiling liquid...
Instrumentation: control valves, on-off valves, flow meters, indicators...

RELIEF SYSTEM DESIGN BASIS — 0.5 day

Definition of risks.
Flare stack and flare main header and sub-headers design.
Safety valves design.
Emergency shut down diagram.
Depressurization.

PROJECT (TREATED ALL ALONG THE COURSE)

Conception of a PID from a process flow scheme. Application of rules for sizing piping and pieces of equipment.

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Training - Play Assessment and Prospect Generation

PLAY-EN-P | Face-to-face only | 5 days

This course provides a practical, comprehensive understanding of that part of the E&P value chain that deals with the technical evaluation of an exploration asset

Level
Skilled

Public
Geoscientists, technical or non-technical managers interested in prospect assessment

Objectives
Attendees will be able to implement the following skills:

- Understand prospect definition workflow and to estimate OHIP (Original Hydrocarbon In Place) estimation parameters
- Understand risks and uncertainties related to OHIP calculation methods and to use related results accordingly
- Review fundamental concepts of portfolio management and to learn how to define adapted exploration strategies

Pedagogical & technical resources

- Lectures and exercises
- Hands-on sessions on real case studies
- Discussion, teamwork experience feedback

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FROM PROSPECT LEAD TO POTENTIAL FIELD — 1 day

Presentation of exploration methods and strategies.
Basin petroleum potential assessment process. Key points of the exploration workflow.

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PLAY ASSESSMENT — 1 day

Data collection and QC.
Basin potential assessment.
Regional context. The petroleum trilogy.
Migration and entrapment processes.
Relative timing of events.

PROSPECT ANALYSIS & GENERATION — 2 days

Source rock potential estimation.
Seismic and well data integration and interpretation.
Basin structural history.
Timing of hydrocarbon expulsion and migration.
OHIP calculation parameters. Determinist and stochastic assessment.
Estimation of risks and related uncertainties. Assessment consistency.
“Prospect review card”.
Case study on prospect generation.

RISK ANALYSIS — 1 day

Identification and assessment of risks and uncertainties related to:

- Geology (source rock, reservoir, seal, preservation).
- Fluids (generation, maturation, migration, entrapment, timing).

Probability Of Success (POS). Transition to dynamics. Consequences for economics.
Case study.

WRAP UP & CONCLUSION

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Training - Risk Based Inspection (RBI)

PLINS-EN-P | Face-to-face only | 5 days

This course covers the necessary background for setting up RBI for static equipment

Level
Skilled

Public
Managers, experienced engineers and staff involved in inspection, maintenance and operation in the petroleum, petrochemical and chemical industries

Objectives
Attendees will be able to implement the following skills:

- identify the degradation modes following the analysis of a corrosion loop and implement compensatory measures
- valculate the criticality of pressure equipment
- establish an inspection plan for piping and containers in accordance with regulatory requirements

Pedagogical & technical resources
An interactive course based on actual case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF RISK BASED INSPECTION — 0.5 day

API 580 overview, concept, probability and consequence of failure, risk ranking.
API 580 methodology, benefits and limits, workforce and schedule necessary to perform RBI study.
API 581 scope, probability of failure based on management factor and statistical failure frequency.

QUANTITATIVE & SEMI-QUANTITATIVE RISK BASED INSPECTION APPROACH — 2 days

Corrosion loops based on process conditions.
Design data and inspection data identification.
Damage factors identification based on corrosion standards such as API 571.

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Calculate probability of failure based on damage factor - Quantitative approach using API581 workflow.
Calculate consequence of failure - Quantitative and semi-quantitative approach using API581 workflow.
Evaluate the overall risk on API matrix.
Define inspection strategy: mitigations actions or inspection scheduling extension.
Overview of available commercial software “RBEYE”.
Example of industrial RBI strategy implemented.
RBI semi quantitative approach based on simplified Excel spreadsheet.

APPLICATION OF THE RBI METHOD WITH MINI-PROJECTS CASE STUDIES 2.5 days

Application of API 581 RBI method using mini projects - Case studies as teamwork:

- Select the appropriate corrosion loops and pressure vessels.
- Identify the degradation.
- Apply API 581 workflow to define POF, COF and overall risk.
- Analyze the risk and propose: risk mitigation with more efficient NDT, adapt the inspection frequency.

Apply RBI semi quantitative approach based on simplified excel spreadsheet and compare the 2 methods.
Each group presents its RBI analysis and conclusion.

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Training - Practice of Exploration-Production Contracts Economic Modeling

PMC-EN-P | Face-to-face only | 3 days

To provide a practical understanding of the economic modeling of Oil & Gas field development project as well as exploration projects A number of computer case studies will be treated all along the course to apply the principles that are presented succinctly, which makes this course a very practical one

Level

Skilled

Public

Economists, engineers and executives involved in Exploration-Production activities who need to acquire a deep understanding of fiscal modeling for project evaluation

Objectives

Attendees will be able to implement the following skills:

- Build economic models for the economic evaluation of Exploration-Production projects
- Analyze the economic results and carry out sensitivity analysis
- Incorporate the geological risk and uncertainty in the economic evaluation of E&P projects

Pedagogical & technical resources

Case studies simulated on computers

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CONTRACTUAL & FISCAL FRAMEWORK OF EXPLORATION-PRODUCTION — 0.5 day

Overview of E&P activities, exploration, development and production costs.
General principles of oil taxation.
Concession contracts, production sharing contracts and service contracts.
Principles of rent sharing between States and oil companies.
Case studies: examples of contracts.

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OIL CONTRACT MODELING — 2 days

Cost of capital and discount rate, value creation.
Economic criteria for project evaluation: net present value (NPV), internal rate of return (IRR), payback period, etc.
Global profitability analysis, the impact of taxation and inflation on economic indicators.
Specific method to Exploration and Production: shadow interest.
Case studies: development of an oil field (under concession and production sharing agreements).
Equity profitability analysis.
Case studies: LNG project and gas pipeline project with specific financing.

RISK ANALYSIS OF EXPLORATION-PRODUCTION PROJECTS — 0.5 day

Introduction to risk analysis and risk discount rate: sensitivity analysis, Spider and Tornado diagrams.
Probability of success, methodology of decision tree analysis.
Analysis of economic risk in exploration.
Typical problems with uncertainties:

- Impact of ringfencing and State participation on the exploration decision process.
- Farm in/farm out, cost and value of information.
- Portfolio management for E&P projects.

CASE STUDIES

Development of an oil field (under concession and production sharing agreements).
LNG plant project with specific financing.
Impact of “ringfencing” and the state participation in the decision-making process.
Valuation of a decision to acquire information (seismic or drilling).
Pricing of an exploration bloc.

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Training - Positive HSE Culture

POSCULT-EN-P | Face-to-face only | 2 days

This course aims to integrate HSE in the decision making process of the participants

Level
Knowledge

Public
Anyone working in the Oil & Gas industry

Objectives
Attendees will be able to implement the following skills:

- Describe the positive safety culture features and apply them to their decision making process
- Contribute to build a positive HSE culture in the organization

Pedagogical & technical resources
Several case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ELEMENTS OF POSITIVE HSE CULTURE — 1 day

What is HSE culture. HSE culture assessment.
Elements of positive HSE culture: informed, reporting, learning, flexible and just.
Case studies.
Characteristics of positive HSE culture vs. negative HSE culture.
Importance and barriers for communication.

HSE LEADERSHIP — 0.25 day

Elements defining HSE leadership in the organization.
Characteristics of HSE leaders.

HUMAN FACTORS & BEHAVIORS — 0.75 day

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Analysis of incidents. Underlying and root causes.
Human error. Modelisation of decision making process.
Analysis of behavior. Types of approaches to risk.
Observation of behavior. Participate in HSE observation visits.

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Training - Profitability Analysis of Downstream Investment Projects

PPA-EN-P | Face-to-face only | 3 days

This course provides a better understanding of the concepts underpinning the capital budgeting theory, helping improving the economic analysis of investment projects. A number of exercises and computer case studies will be treated all along the course to apply the theoretical principles that are presented, which makes the course a very practical one

Level

Skilled

Public

Staff involved in capital investment decisions. Project managers, engineers, commercial staff and support functions. Decision makers wishing to better understand analyses carried out by project teams

Objectives

Attendees will be able to implement the following skills:

- Develop a computer model for the economic evaluation of downstream projects
- Compute and analyze the key economic evaluation criteria (NPV, IRR...) on an ungeared and geared basis
- Include the risks and uncertainties of Downstream projects in their economic evaluation

Pedagogical & technical resources

- Exercises and case studies on Microsoft Excel including
- Quiz

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

VALUE CREATION & DISCOUNTING CASH FLOW METHODOLOGY — 0.5 day

Introduction.
Discounting principles: time value of money.
Value creation and cost of capital (WACC).

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INVESTMENT PROJECT GLOBAL PROFITABILITY ANALYSIS — 1.5 days

Constructing a project's cash flow schedule: profit and loss account vs. cash flows, dealing with taxes, working capital impact, and economic life.
Calculating and understating the key economic analysis criteria: Net Present Value (NPV), Internal Rate of Return (IRR), payback time, financial exposure, profitability index.
Considering monetary erosion: nominal and real term values concepts. Impact on projects' profitability.
Economic cost/breakeven.
Working with several currencies.
Economic indicators interpretation pitfalls.

INTRODUCTION TO RISK ANALYSIS — 0.3 day

Identifying risks and taking them into account in the economic analysis: Pestle analysis, risk premium, contingencies.
Sensitivities (Tornado chart, Spider diagram), scenarios, decision trees.

GEARED CASH FLOW ANALYSIS — 0.7 day

Project financing and equity returns: bankability criteria, leverage effect
Participants will be asked to work on various exercises and case studies along the course including:

- Calculating the WACC of a company
- Calculating the Impact of working capital on a polypropylene plant project.
- Profitability analysis of a Petrochemicals plant.
- Profitability analysis of a Bio refinery (ungeared and geared).

The list of exercises and case studies above may be adapted by IFP Training at the time of the course to best suit the participants' profile and learning objectives.

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Training - Commodity Polymers Manufacturing

PPLAS-EN-P | Face-to-face only | 3 days

This course provides a comprehensive information on polymers and polymerization processes used to produce polyethylenes, polypropylenes, polyvinylchloride and polystyrenes

Level

Knowledge

Public

Professionals interested in polymers production

Objectives

Attendees will be able to implement the following skills:

- Explain the principles of polymerization techniques and the main characteristics of manufactured polymers
- Describe the operating conditions of polymerization processes

Pedagogical & technical resources

- This course can be adapted for distance learning
- Presentation of polymer samples from the manufacturing plants
- Presentation of end uses application samples

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

POLYMER TYPES & NATURE — 0.25 day

Polymer constitution: monomers, macromolecules, building blocks.
Various kinds of polymer: fibers, elastomers, plastics.
Plastic types: thermoplastics and thermosets.
Main commodity polymers: polyethylenes, polypropylenes, polystyrenes and polyvinylchloride.
Economical aspects relating to these commodity polymers.

POLYMER PRODUCTION - ASSOCIATED PROPERTIES — 1 day

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Main polymerization reactions: polyaddition, polycondensation.
Basic characteristics of polymer reactions: heat of reaction, activation mode, etc.
Different arrangements of monomer building blocks in polyaddition: atactic, syndiotactic or isotactic polymers; random block; graft; alternate polymers.
Relationship between end uses implementation and main polymer properties. Impact on properties.
Main tests used to get polymer characterization: melt index, viscosity index, etc. Test signification, relationship with polymer structure.
Consequences regarding polymer implementation techniques (extrusion, injection, etc.).

POLYMERIZATION IMPLEMENTATION - MAIN COMMODITY PLASTIC PROCESSES — 1.75 days

Techniques implemented to produce polymers: solution, bulk, emulsion, suspension, gas phase techniques.
Advantages and drawbacks of those different techniques consequences on processes implementation.
Examples applied to the main processes used to manufacture the major thermoplastics: polyethylenes (PE), polypropylenes (PP), polystyrenes (PS) and polyvinylchloride (PVC).
Flow charts and principles of processes. Some typical operating conditions.
Influence of operating parameters (temperatures, pressures, monomers ratio and proportion of any chemicals involved in the reaction) regarding the quality of polymer obtained.
Some pretreatments of polymers outside the reactor before the transformation step.

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Training - Well Productivity and Reservoir - Wellbore Interface

PPLCT-EN-P | Face-to-face only | 5 days

This course provides the knowledge and skills needed to optimize the reservoir-wellbore interface and well productivity

Level

Knowledge

Public

Young engineers involved in drilling/completion, supervisors in charge of drilling pay zone, and production professionals concerned with well productivity

Objectives

Attendees will be able to implement the following skills:

- select a reservoir-wellbore interface adapted to the conditions encountered in the reservoir
- detect problems holding down productivity and select adequate solutions
- determine the flow potential of the well
- understand the different perforation methods & their selections
- perform a design of tubing diameter according to production objectives

Pedagogical & technical resources

- Numerous exercises on the influence of key parameters
- Numerous animations and videos
- Summary notes prepared and presented by the participants
- Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

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Responsable

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Program

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NECESSARY FUNDAMENTALS OF RESERVOIR ENGINEERING FOR COMPLETION — 1 day

Main parameters about the rock-fluid couple: porosity, permeability, saturation.
Means of reservoir knowledge: core, logging, well test.
PVT study: PV diagram, PT diagram, terminology (bubble point, dew point, Rs, Bo, Bg, GOR, WOR...).
Drainage mechanisms: primary, secondary and enhanced recovery.

COMPLETION FUNDAMENTALS — 0.5 day

Completion: operations involved, main phases.
Main factors influencing completion design.
Completion configurations: fundamental requirements, main configurations.
Main completions of gas storage wells and Geothermal wells

WELL PRODUCTIVITY (PART 1) — 1 day

Fundamentals: overall approach of the well flow capacity:

- Inflow (study of the bottom hole pressure from the upstream side): main parameters, Productivity Index (PI), global skin and flow efficiency.
- Outflow (study of the bottom hole pressure from the downstream side): case of oil wells and case of gas wells.
- Analysis of inflow and outflow performance curves, need for artificial lift.

RESERVOIR WELLBORE INTERFACE IMPLEMENTATION (EXCLUDING "WELLBORE TREATMENTS") — 1 day

Specific aspects linked to drilling and cementing the pay zone.
Perforating: main techniques, key parameters for productivity.
Specific case of horizontal drains.

WELL PRODUCTIVITY (PART 2) — 1 day

Additional information about PI:

- Productivity index and flow regime.
- Inflow performance below bubble point pressure (IPR).

Additional information about skin:

- Components of completion skin.
- Damage skin estimation.

KNOWLEDGE ASSESSMENT — 0.5 day

Sessions

Pau - From 02/01/2027 to 02/05/2027 — **4420 €/HT**

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Training - Practicing Commissioning

PRACOM-EN-P | Face-to-face only | 4 days

This course provides practical knowhow so as to get the participants directly confront the reality of the field

Level

Knowledge

Public

Operating and technical staff in charge of commissioning and start-up operations on field

Objectives

Attendees will be able to implement the following skills:

- Anticipate the risks while commissioning and start-up operations
- Identify the key points of the most current operations
- Proceed to main pre-commissioning and commissioning activities

Pedagogical & technical resources

- Experience sharing through applications and cases studies on Oil & Gas units
- Cases studies on the precommissioning, commissioning and start-up of units
- Analysis of incidents occurred while precommissioning, commissioning or start-up phases

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

COMMISSIONING & START-UP PHASES IN PROJECT CYCLE — 0.5 day

End precommissioning, mechanical completion, commissioning, ready for start-up, start-up permit, performance test runs, temporary and final acceptance.
Commissioning and start-up: a non-linear schedule. SIMOPS. Input data and reference documentation. Punch lists. Management of Change (MOC).

SPECIFIC RISKS TO COMMISSIONING & START UP — 0.5 day

Fluid behavior and energy associated hazards. Chemical and physical hazards. Flammability.

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Main risks induced by equipment, such as rotating, pressure vessels, thermal or naked flame equipment.
Risks related to utilities start-up: inert gas, nitrogen, steam, instrument air, water, fuel gas, diesel.
Risks evolution from construction to start-up. Transient phases. Safety reviews. Managing leaks.

WHAT TO DO BEFORE COMMISSIONING PROCESS UNITS — 1.5 days

End of construction: visual control and checks for static and rotating equipment (no energy, no fluid). Cold clamping. Check of installation standards for piping and instrumentation.
Precommissioning activities: hydraulic tests and process equipment cleaning.
Mechanical completion.
Particular case of Utilities facilities: pre-commissioning, commissioning and start-up (ready for operations).

COMMISSIONING OF PROCESS UNITS & START UP — 1.5 days

Chemical cleaning, flushing and blowing. Equipment drying and dynamic testing.
Particular case of instrumentation - Loops and DCS tests. Synchronization.
Preparation for the start-up of rotating equipment.
Prestart-up checks before oil-in. Plant line-up and test run.
Start-up: leak tests, air removal, oil-in. Heating up and hot bolting.
Update of documentation.

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Training - Practice of PRO-II/Provision or HYSYS Simulation Software

PRO2HYS-EN-P | Face-to-face only | 2 days

This course aims to present an overview of the use of the PRO-II/PROVISION or HYSYS software programs

Level
Knowledge

Public
Engineers looking for a practical introduction to simulation of industrial units

Objectives
Attendees will be able to implement the following skills:

- Simulate stationary processes from their unit operations and available thermodynamic data
- Leverage simulation results

Pedagogical & technical resources
Computer-based case studies with analysis of simulation inputs and outputs

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Complementary informations
The program can be declined under PROII or HYSYS according to the customer's request. For a training course carried out on PROII, the software can be provided from IFP Training with the training . But for HYSYS, the licences of the software should be available from the client's

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SIMULATION PRINCIPLES & DATA PREPARATION — 0.25 day

Simulation principles: concepts of streams and units.
Getting started with PRO II/PROVISION: start a new simulation or open an existing simulation file, import a keyword input file, export a simulation database.
Presentation of the different menus, ribbon bar buttons, PFD Main Window and PFD palette. Presentation of the input and output files.

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Thermodynamic methods: available models, selection criteria.
Supplying required data for components and feed streams: pure components, petroleum pseudo components, analysis data.

OPERATIONS WITH PURE LIQUID-VAPOR EQUILIBRIA 0.25 day

Analysis of different operations with pure components: flash, compression, depressurization, preheating, vaporization, cooling down, condensation.
Practice analysis of two different cryogenic cycles with propane, operating conditions and impact on the efficiency of the process, representation on the enthalpic diagram and validation of the results. Influence of the purity of the propane and impact of a pollution with little quantity of air.

SEPARATION OF HYDROCARBON MIXTURES 0.75 day

Liquid-vapor equilibria of hydrocarbon mixtures:

- Required data for a liquid-vapor equilibrium (flash) simulation.
- Different types of flash specifications: fixed pressure and temperature, bubble point, dew point, etc.
- Practice: hydrocarbon flashes, water-hydrocarbon condensation.

Distillation:

- Required data for the simulation of a distillation column: number of trays, feeds and products, pressure profile, type of condenser and reboiler, etc.
- Different types of specifications - Available parameters.
- Print options: temperature, rate or composition profiles.
- Practice: design of a depropanizer and a draw-off column.

PRACTICE, CASE STUDIES & COMPLEMENTARY TOOLS 0.75 day

By means of numerous exercises, complementary tools are presented: controller, optimizer, case study, calculator, and their role, efficiency and necessary data are studied.
HYSYS practice:

- Natural gas degasolination by different means.
- Cryogenic cycle (flash, compressor, heat exchanger, etc.): determination of the cooling fluid to be implemented in different cases (use of a “controller”).
- Gas expander cycle (compressor, expander, reactor, heat exchanger, etc.): determination of the efficiency in different cases (use of a “calculator”).

PRO-II practice:

- Distillation column: optimization of the feed inlet tray location (use of an “optimizer” or “a case study”). Heat integration.

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Training - Production Engineering

PRODENG-EN-P | Face-to-face only | 60 days

This training aims to provide a comprehensive knowledge and practical know-how of integrated subsurface and surface production engineering

Level

Knowledge

Public

Production engineers, field engineers, production managers..., seeking to acquire comprehensive and solid engineering capabilities in Oil & Gas production, from the reservoir to the surface production facilities. This training program is well suited for junior Engineers and Engineers in conversion. It can also be tailored to experienced engineers

Objectives

Attendees will be able to implement the following skills:

- Identify and link all key subsurface and surface parameters impacting Oil & Gas production
- Implement integrated production management from the reservoir to the export point
- Use professional software to conduct production analysis studies and make recommendations for production optimization
- Contribute to field development studies

Pedagogical & technical resources

- Highly interactive training course, delivered by industry experts and adapted to participants' experience
- Numerous case studies and hands-on activities on professional software: MBAL™, PROSPER™, GAP™ for production engineering, PIPESIM™ and OLGA™ for gathering networks and flow assurance
- Teamwork project on a real case study of production optimization

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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FUNDAMENTALS OF GEOLOGY, RESERVOIR ENGINEERING & PRODUCTION MODES — 5 days

Petroleum geology and geophysics. Reservoir fluids. Petrophysics. Well log interpretation. Well testing. Reservoir engineering and simulation.

FUNDAMENTALS OF DRILLING, WELL ARCHITECTURE & COMPLETION — 5 days

Drilling fundamentals: principles of drilling, functions of the drilling fluid; drilling equipment. Well architecture and equipment: drilling and casing program; wellhead, characteristics of casings; shoe positioning, casing string calculations. Well completion equipment: main factors influencing completion design; completion configurations: requirements, main configuration; equipment of naturally flowing wells.

WELLBORE TREATMENTS — 5 days

Reservoir-wellbore interface fundamentals. Matrix treatment: acidizing. Hydraulic fracturing. Sand control. Water or gas shut-off and deposits.

WELL SERVICING & WORKOVER — 5 days

Reasons and well intervention means on production well. Well servicing. Workover: main operations; depleted reservoirs, study of different well workover cases; workover case study.

WELL PERFORMANCE & ARTIFICIAL LIFT — 5 days

Inflow performance/outflow performance. Well performance: well deliverability nodal analysis (inflow/outflow); well performance modeling, prediction and analysis/reservoir pressure, PI, GLR, BSW, tubing ID.
Artificial lift: gas lift (fundamentals, unloading procedure, surveillance and troubleshooting), Electrical Submersible Pump - ESP (components, design, problems), rod pumping and jet pumps fundamentals, comparison of the artificial lift methods.
Application on PROSPER™ software: PROSPER™ methodology for gas lift design and troubleshooting, manual application; PROSPER™ methodology for ESP troubleshooting.

GATHERING NETWORKS: DESIGN & OPERATION — 5 days

Fundamentals of fluid mechanics. Multiphase flow. Gathering networks: design criteria, flow assurance issues (hydrates, deposits...), gathering networks operation. Tie-in assessment using PIPESIM™: tie-ins and their impact on existing networks; implementation strategies, design and operation considerations. Multiphase dynamic simulation using OLGA™: gas field case study; oil field case study.

OIL & GAS FIELD PROCESSING — 5 days

Well effluent characterization; well effluent behavior. Need for field processing of well effluents. Crude oil processing: stabilization, dehydration, desalting. Production and injection water processing. Gas processing and conditioning: dehydration, sweetening, condensates recovery and fractionation. Fundamentals of LNG chain.

OFFSHORE FIELD DEVELOPMENT - PIPELINES & FLOW ASSURANCE — 5 days

Overview of offshore field developments. Fixed and floating production structures. Deep-offshore field developments. FSO/FPSO technology. New deep-water technologies. Operation of (offshore) terminals. Flow assurance: prevention of deposits in flowlines; monitoring of multiphase flow through flowlines. Flowlines/pipelines: technology, laying and operation.

METERING, MATERIAL BALANCE & PRODUCTION ALLOCATION — 5 days

Different types of metering. Importance of metering and associated data processing. Measures and metering systems along the chain. Implementation of a metering installation. Influence on process. Single phase metering: operating principle and equipment, transactional metering of liquids, transactional metering of gas. Multiphase metering: operating principle and equipment. Liquid balances. Gas balance. Performance monitoring and production reporting. Case study and production balances reconstruction: back allocation, satellite fields, main production centers.

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HSE IN PRODUCTION ACTIVITIES — 5 days

Operations & HSE. Main hazards associated to hydrocarbon production and processing. Risks assessment tools; Job Safety Analysis. Risks in normal production operations and safe isolation of plant and equipment. Risks in well servicing operations. HSE in drilling and completion operations. HSE in SIMultaneous OPerationS (SIMOPS). Organizational framework. Human factors. Sustainability management in production operations.

PRODUCTION OPTIMIZATION: INTEGRATED PRODUCTION MODELING — 5 days

Advanced well performance. Case study using PROSPER™. Reservoir performance and modeling: prediction of production profile. Case study using MBAL™. Integrated production system models. Global production modeling and optimization: full field optimization and forecasting approach; GAP™ software overview and main functions; system definition, how to link MBAL™ and PROSPER™ models to GAP™ solve network; full field development hands-on exercise: prediction constraints.

PRODUCTION OPTIMIZATION: FIELD CASE STUDY & JURY — 5 days

5-day teamwork on an integrated project with deliverables to be presented on the last day (jury).
Agenda of the 5-day group project: field presentation (objectives of the project), building the reservoir model, well performance, surface architecture, jury (project presentation, synthesis and wrap-up).
Coaching throughout the project by experts using a real case study: bottlenecks are identified in the production system, given reservoir and fluid properties, wellbore configuration and flowing wellhead pressure; production performance is predicted from history production trends.

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Training - Production Superintendent

PRODSI-EN-P | **Face-to-face only** | **61 days**

This certifying course provides the in-depth technical knowledge of Oil & Gas processing operations along with managerial and communication skills for qualifying to hold the position of production superintendents. The required high-level knowledge stretches over a wide range of issues in relation to reservoir, corrosion, inspection, maintenance, well performance, flow assurance...

Level

Skilled

Public

Professionals with a significant experience in Oil & Gas surface production who are called on to hold position of production superintendents

Objectives

Attendees will be able to implement the following skills:

- Describe the overall production process, from reservoir to offloading facilities
- Explain available tools and techniques for well performance enhancement and production optimization
- Explain state-of-the-art Oil & Gas production techniques
- Describe HSE management rules and responsibilities
- Acquire world class work methods and communication skills
- Anticipate anomalous events and react effectively to troubleshooting to avoid production loss

Pedagogical & technical resources

- Several applications and illustrations
- Intensive teamwork
- Use of dynamic training simulations
- Practical sessions with equipment in a workshop

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION — 1 day

Welcome and program overview. Entry test. Units. Dimensions.

DOWNHOLE PRODUCTION - WELL PERFORMANCE - PRODUCTION FUNDAMENTALS — 5 days

Fundamentals of reservoir engineering. Well testing. Fundamentals of drilling, completion and well servicing. Artificial lift (pumping, gas lift...) and well performance. Effluent behavior. Fundamentals of thermodynamics. Specifications. HSE management.

OIL, WATER & GAS PROCESSING — 5 days

Oil processing: required specifications; stabilization; dehydration, desalting. Production and injection water treatment: quality requirements and associated treatments; operating conditions. Gas processing: required specifications; dehydration; hydrates, consequences and treatments; Natural Gas Liquids recovery. Oil & Gas sweetening. Liquefied Natural Gas, principles and liquefactions processes. Natural gas liquids treatments.

OFFSHORE DEVELOPMENTS, FLOW ASSURANCE — 2 days

Offshore developments challenges, technology, techniques and production constraints. Fixed and floating production structures. Prevention of deposits in flowlines. Monitoring of multi-phase flows through flowlines.

METERING & ALLOCATION — 2.5 days

Different types of metering. Importance of metering. Metering installation, data treatment. Single-phase metering: operating principle & equipment. Transactional metering of liquids and gases. Multiphase metering: operating principle and equipment.

CHEMICALS USED IN PRODUCTION ACTIVITIES — 2.5 days

Introduction to chemical treatment in production field. Chemicals for oil and gas treatment. Chemicals for injection and produced water processing. Special operations.

PRODUCTION FACILITIES TROUBLESHOOTING, DYNAMIC SIMULATOR — 5 days

Oral presentations of facilities actual malfunctions and teamwork investigation.
Operations troubleshooting methodology and case studies: recognize a trouble when occurring; ISHIGAWA grid; methodological approach to identify causes and remedial options; PARETO graph; troubleshooting toolbox. Case studies on a dynamic simulator: wells and production lines; rotating equipment; crude oil and associated gas: operation and troubleshooting; production shutdown and restart.

BEHAVIORAL MANAGEMENT — 5 days

Teamwork management, written and oral communication. Active listening and communication tools. Team cohesion and stress management. Problems analysis and investigation: tools and behaviors. How to better analyze and know oneself.

INSTRUMENTATION & PROCESS CONTROL - ELECTRICITY — 5 days

Instrumentation and process control: functional blocks, symbolization; pneumatic, electrical and digital technologies; measurements, sensors, security equipment; control equipment, actuators; controllers and control loops; Distributed Control System (DCS): architecture, connections; Safety Instrumented Systems (SIS): HIPS, ESD, EDP, FGS.
Electricity: generation (turbines, alternators, monitoring, troubleshooting); distribution (HT-BT networks, power supply, stability, constituents, cabinets, transformers, batteries, isolation, protections).

ROTATING MACHINERY — 5 days

Pumps: pumping prerequisites (pressure, flowrate, head); centrifugal pumps (types, technology, auxiliaries, performances); volumetric pumps (rotating, reciprocating).
Compressors: compression prerequisites (technology, auxiliaries, practical laws); centrifugal compressors (rotor,

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stator, bearings, shafts, seals balance); reciprocating compressors (frame, cylinders, pistons and rings, bearings, lubrication, cooling). Gas turbines: operating principles, compression, combustion, expansion, performances; technologies (compressor, combustion chamber, turbine, internal cooling); auxiliaries. HSE concerns.

TERMINAL, FSO & FPSO — 1 day

Overview of oil terminals. FSO & FPSO technologies. Metering of oil quantities.

CORROSION, INSPECTION & INTEGRITY — 2 days

Corrosion mechanisms. Types of corrosions in the Oil & Gas industry. Corrosion prevention and monitoring, fundamentals of inspection.

HSE RISKS & MANAGEMENT — 15 days

HSE risks, flammability, overpressure systems: PSV, flare and flare network, closed and open drains... Safety in operation: use of utilities, degassing/inerting, confined space entry, start-up and shutdown. Safety during construction and maintenance works: lifting & rigging, work at height, electrical safety... Work permit system. SIMultaneous OPerationS (SIMOPS) management... HSE management systems. Management of change. Downgraded situations. HSE referential and responsibilities. Safety engineering: HAZID, HAZOP, layout optimization and identification of major accidents. Risks matrix... Safety systems: HIPS, ESD, EDP, F&G, USS. Safety logic diagrams. Human factors. Safe operating philosophy and methodology. Incident analysis and reporting. Root cause analysis.

REVISIONS - ORAL ASSESSMENT — 2 days

Sessions

Pau - From 09/15/2026 to 12/08/2026 — **45840 €/HT**

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Training - Production Supervisor

PRODSUP-EN-P | **Face-to-face only** | **45 days**

This course provides the required skills and comprehensive knowledge to hold the position of Production Supervisor and ensure safe and efficient operations in upstream Oil & Gas facilities

Level
Skilled

Public
Current or future production supervisors in Oil & Gas production, transport or storage facilities

Objectives
Attendees will be able to implement the following skills:

- Explain fundamental concepts underlying oil, water and gas processing
- Grasp technical details and operating issues of completion and artificial lift
- Detail typical effluent processing techniques and impact of various operating parameters
- Describe technology and operation of static equipment and rotating machinery used in production facilities
- Identify HSE risks linked to operations, constraints and maintenance activities
- Analyze Oil & Gas processing operations using DCS, suggest and implement adapted solutions
- Detect and react to abnormal conditions in a structured manner by implementing troubleshooting best practices, using DCS tools readily available

Pedagogical & technical resources

- Highly interactive training by experienced lecturers
- Numerous examples taken from the industry and case studies derived from actual situations
- Analysis and troubleshooting of actual production operations problems using a dynamic simulator

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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FUNDAMENTALS — 5 days

Fundamentals of chemistry: atoms, molecules, atomic weight, molecular weight.
Hydrocarbons types and main characteristics.
Applied physics: force, work and energy, temperature, thermal energy and heat transfer, pressure, hydrostatics, hydrodynamics and friction losses.
Well effluent: composition, types and characterization parameters.
Liquid-vapor equilibrium of pure components and mixtures.
Well effluents behavior. Need for effluents field processing. Specifications.

DOWNHOLE PRODUCTION — 5 days

Fundamentals of reservoir engineering.
Information on drilling techniques, completion techniques and equipment. Wellhead equipment.
Fundamentals of well performance.
Artificial lift by Gas Lift (GL), Electrical Submersible Pumps (ESP), Sucker Rod Pumps (SRP), Progressing Cavity Pumps (PCP).
Operating principle, selection criteria, operations, troubleshooting.

EFFLUENT PROCESSING — 10 days

Oil treatment:

- Stabilization (degassing): principle, process parameters, foaming problems.
- Dehydration (water removal): principle, process parameters, emulsion problems.
- Sweetening (H2S removal): different techniques, process parameters.

Production and injection water treatment.
Gas treatment:

- Gas dehydration and hydrate formation inhibition.
- Gas sweetening.
- NGL extraction/recovery.
- Fundamentals of LNG.

Oil & Gas metering.
Terminals, FSO & FPSO, offshore development.
Fundamentals of process troubleshooting.

STATIC EQUIPMENT — 5 days

Piping and valves. Metallurgy and corrosion.
Storage equipment.
Thermal equipment.
Instrumentation, process control. Distributed Control System (DCS). Electricity.
Safety System: HIPS, ESD, EDP, F&G, USS.

ROTATING MACHINERY — 5 days

Pumps: centrifugal and positive displacement.
Compressors: centrifugal and reciprocating.
Gas turbines.

CONTROL ROOM OPERATION & SURFACE PRODUCTION TROUBLESHOOTING — 10 days

Troubleshooting methodology:

- Troubleshooting flowchart.
- Recognize a trouble when occurring.
- Methodological approach to identify causes and remedial options. Action plan.

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- Implement operational/design modification.
- Troubleshooting toolbox.

Case study. Feedbacks from industry.
Troubleshooting in control room operations (on dynamic simulator):

- Use of DCS tools (trends, historical, alarm summary...) to anticipate deviations, identify and react to common production operations problems.
- Surface production units operation and troubleshooting: wells and production lines. Rotating machines. Oil & Gas treatment.

Production facilities start-up and shutdown.
Troubleshooting mini-project on real case studies.

HSE — 5 days

Main HSE risks.
Hazards for personnel.
HSE in production operations.
HSE in construction and maintenance works.
Risks inherent to SIMultaneous OPerationS (SIMOPS).
HSE management. Responsibilities.
Risk analysis. Safety engineering concepts.

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Training - Management of Large Projects

PROJ-EN-P | Face-to-face only | 5 days

This course explains how large projects are managed from initial stage to completion, integrating the limitation of the environmental footprint, with a focus on Oil & Gas project

Level
Skilled

Public
Professionals who require a comprehensive understanding of management practices for large projects

Objectives
Attendees will be able to implement the following skills:
- Describe the activities & deliverables associated to the different project phases
- Understand the management methods used for large projects

Pedagogical & technical resources
- Several examples taken from large projects
- Various case studies are used to apply the techniques presented in the course

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PROJECT MAIN PHASES & ORGANIZATION — 0.5 day

Asset lifecycle and stage gate process, from initial idea to start-up
Preliminary, conceptual and pre-project studies on client/sponsor side to justify the project and main deliverables.
Development sequence: strategy and Project Execution Plan (PEP).

INTEGRATION OF ENVIRONMENT PROTECTION MEASURES — 0.25 day

Energy efficiency, CCUS, Alternative means of producing energy

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SELECTION OF ENGINEERING CONTRACTORS — 0.5 day

Role of engineering contractors
Contracting strategy: project breakdown into contracts and main contract types
Tendering process and contract award
Company supplied items.

PROJECT ORGANIZATION — 0.5 day

Client / Sponsor / Proponent and engineering contractor perspectives
Interactions between company's and contractor's team. Integrated project management team.
Human resources, organization charts, project manager’s role.
Interface management.

PROJECT CONTROL — 1.25 days

Costs: estimation of facilities expenditures, budget elaboration, cost control, reporting. Claim management.
Planning and scheduling: schedule elaboration, progress control, recovery plan.
Quality assurance: control, and surveillance. Technical integrity management
Project risks management and relevant action plans.

ENGINEERING, PROCUREMENT & CONSTRUCTION (EPC) ACTIVITIES — 1.5 days

Detailed studies: main deliverables per disciplines, project reviews, documentation control, management of changes, interface management (engineering disciplines, suppliers, yards).
Procurement activities: purchasing, expediting, inspection
Construction challenges: contractors and resources, (sub) contract types. Fabrication at yards. Construction at site. Interface with commissioning.
Completion activities: pre-commissioning, commissioning activities, hand-over and acceptance of the facilities.
Project close out and management of collective knowledge.

HEALTH, SAFETY AND ENVIRONMENT (HSE) MANAGEMENT HIGHLIGHTS — 0.5 day

Tools and techniques for Health, Safety and Environment (HSE) design, project reviews, HSE concept.
HSE during construction phase, HSE indicators.

Sessions

Rueil-Malmaison - From 11/16/2026 to 11/20/2026 — **4360 €/HT**

Rueil-Malmaison - From 11/15/2027 to 11/19/2027 — **4460 €/HT**

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Training - Understanding the Operation of Refining Processes

PRORAF-EN-P | Face-to-face only | 5 days

To bring an in-depth understanding on the running, operation and follow-up of the performances of the different crude oil refining processes

Level
Skilled

Public
Engineers and executives in contact with refinery operators but who are not directly involved in the production unit operation: laboratory personnel, people from the programming or piloting departments, process control, maintenance, research centers, HSE departments.

Objectives
Attendees will be able to implement the following skills:

- Recognize the diagram of the main manufacturing processes
- List the characteristics of the fillers and products of these processes
- Qualitatively evaluate the influence of the main driving parameters of the main manufacturing processes
- Point out the specific problems related to safety, health, and environmental protection in relation to the operation of the units

Pedagogical & technical resources
The efficiency of the training is guaranteed by numerous practical applications related to the operation of these processes that highlight the role of the operating parameters, the specific points in the follow-up and some key-sequences of the operation

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CRUDE OIL ATMOSPHERIC & VACUUM DISTILLATIONS — 0.75 day

Adjustment of the quality of the cuts: material balance and cut points; side stream stripping.
Pumparounds: principle, relation with the fractionation capability, crude preheating and energy consumption.

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Corrosion, corrosion control and desalting.
Vacuum systems: operation, failure and remedies.

GASOIL DESULFURIZATION & SULFUR CHAIN — 1 day

Role of hydrotreatments in refining, chemical reactions and catalysts.
Means used for a deep desulfurization: role and compared importance.
Hydrogen consumption and parameters of the hydrogen balance management in the refinery.
Operating parameters of Claus process and unit reliability.
Treatment of Claus stack gas and control of the sulfur emissions to the atmosphere.

CATALYTIC REFORMING & ISOMERIZATION — 0.75 day

Bifunctional catalyst and sequence of the reforming reactions in the different reactors.
Severity: effect on the material balance and the qualities, hydrogen production and the catalyst.
Discontinuous and continuous regeneration: successive steps, layout of the regeneration tower of the RR.
Separation of the isomerate by distillation or chromatography: impact on the octane number.

FLUID CATALYTIC CRACKING — 0.75 day

Conversion: impact of the feed quality and the operating conditions.
Heat balance, temperature optimization and coke production management.
Pressure balance: catalyst circulation, fluidization and combustion safety.
Regenerator operation: complete or incomplete combustion, advantages, incidents.
Potential malfunctions and impact on the environment.

ALKYLATIONS — 0.25 day

Technology of reactors and operating conditions corresponding to the acids HF or H2SO4.
Conducting the acid inventory: consumption and regeneration of acid.
Neutralization and purification of the products exiting the unit.

HYDROCRACKING & PRODUCTION OF HYDROGEN — 0.75 day

Material balance and characteristics of the cracking products.
Operating parameters, process operation, temperature and safety automation control.
Production of hydrogen: efficiency, purity and energy consumption.

VISBREAKING — 0.25 day

Feed structure and stability of the cracked residue.
Follow-up of the evolution of the visbreaking furnace, skin temperature of tubes and decoking.

COKER — 0.5 day

Delayed coking, fluid, fluid with avec gasification.
Technology of coke drums and layout of the valve manifolds. Main decoking steps.
Conversion and recycle ratio at the fractionator. Operating parameters and follow-up of coking in the furnace tubes.

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Training - Process Safety Management

PSM-EN-P | Face-to-face only | 10 days

This course provides the knowledge necessary to acquire a consistent approach to achieve an efficient development to effectively manage process safety in production facilities

Level

Skilled

Public

Engineers, technicians and staff, not familiar with the concepts of process safety, involved in operating Oil & Gas field processing facilities or in designing Oil & Gas projects architecture

Objectives

Attendees will be able to implement the following skills:

- Describe standards and participate in the deterministic methods of safety engineering
- Explain the different elements of process safety management and identify strategies for implementation
- Identify and describe the safety critical elements in the production process, explain the most relevant features of asset integrity
- Define roles and responsibilities applicable to process safety management
- Establish process safety management objectives

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF PROCESS SAFETY — 1 day

Concept of process safety. Historical approach.
Process safety roles and responsibilities.
Safe design principles. Introduction to inherently safer design.

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Concept of loss of containment. Fundamentals of flammability and fluid behavior.
Major accident hazards. Introduction to bowtie diagram representation.

PROCESS SAFETY REGULATIONS — 0.5 day

Identification and compliance with legislation and industry standards.
Best practices standards: OSHA, CCPS.
Relationship with other benchmarking standards: offshore safety case regulation, SEVESO III.

PROCESS SAFETY CULTURE — 0.5 day

Safety leadership and commitment.
Safety culture.
Workforce involvement.
Stakeholders identification and communication.

PROCESS HAZARD ANALYSIS — 1.5 days

Process safety information: products, technology, equipment and human intervention.
Hazards related to typical Oil & Gas process.
Methodology for carrying out a HAZID.
HAZID application.
Introduction to HAZOP methodology. Node identification. Guidewords.
HAZOP register matrix. Group management.
Introduction to What-if methodology.
HAZOP exercise.
Introduction to Failure Mode and Equipment Analysis (FMEA study).
Introduction to fault tree analysis.
Plant layout. Introduction to consequence analysis.

OPERATING PROCEDURES — 1.5 days

Definition of operating phase steps and limits.
Process monitoring. Process control system elements.
Safe isolation of equipment.
Pre-startup safety review. Operational readiness.
Case study: Buncefield.

ASSET INTEGRITY — 2 days

Safety critical equipment. Equipment deficiencies and quality assurance.
Definition and functions of safety systems.
Control of ignition sources. Electrical equipment regulations.
Control of hydrocarbon inventory. Flares and vents.
Introduction to safety instrumented systems.
Fire & gas detection systems.
Passive and active fire protection.
Maintenance procedures and training.
Introduction to corrosion.
Inspection and testing planning and execution.

ORGANIZATIONAL ELEMENTS — 1.5 days

Safe work practices. Permit to work system.
Management of change.
Downgraded situations.
Emergency response planning. Escape, evacuation and rescue.
HSE management of contractors: evaluation and performance monitoring.
Workforce training. Training matrix development.
Human factors in process control. Alarm systems. Human error in process plants.

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Case study: platform P-36.

CONTINUOUS IMPROVEMENT ELEMENTS — 1.5 days

Undesired events reporting and investigation. Analysis strategies.
Management system audit.
Process Safety Key Performance indicators. API RP 754.
IOGP Process safety reporting scope.
Management review.
Case study: Piper Alpha.

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Training - E&P Project Planning and Scheduling Workshop

PSPC-EN-P | Face-to-face only | 5 days

This course provides participants with the know-how to elaborate, optimize and control a project schedule

Level
Skilled

Public
Project engineers responsible for building, optimizing and controlling the schedule of upstream projects

Objectives
Attendees will be able to implement the following skills:

- Take into consideration the different project execution phases when building the schedule
- Understand the advantages and drawbacks of the various schedule computer tools available on the marketplace
- Create the detailed planning of a project on Microsoft Project or Primavera according to the client's software)

Pedagogical & technical resources

- Examples of onshore and offshore exploration and production projects
- Adaptable case studies on MS Project/Primavera

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PLANNING & SCHEDULING PROCESSES — 1 day

Planning basis, scheduling sequence and critical path.
Schedule updates reflecting actual performance.
Progress measurement and control of each execution phase (engineering, procurement and construction).

ONSHORE CASE STUDY USING MS PROJECT — 1 day

Presentation of a fictitious revamping onshore project (which entails a plant shutdown) to be used as case study.

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Demonstration of software functions. Critical path visualization.
Input and coding of activities, tasks and resources. Reporting levels.
Physical progress update for reporting purposes.

OFFSHORE CASE STUDY USING PRIMAVERA — 3 days

Presentation of a fictitious deep offshore project to be used as a case study.
Demonstration of software functions.
Definition of the list of project activities to be carried out according to the project scope of works.
Input and coding of activities, tasks and resources necessary to project execution.
Sequence of the activities and estimation of their duration. Probabilistic approach in scheduling.
Critical path visualization.
Various types of progress (physical, cost, hours). Follow-up methods.
Relationship between cost progress and schedule.

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Training - Properties, Storage and Transfer of LPG

PSTGPL-EN-P | **Face-to-face only** | **4 days**

From the properties of Liquefied Petroleum Gas (LPG), the storage, loading/unloading equipment and associated hazards, this training course aims to meet the needs for safe operation in LPG depots, chemical and petrochemical terminals

Level

Knowledge

Public

Staff (field operators, panel operators, shift leaders, young engineers and terminal managers) involved in LPG storage and transfer activities. By extension, any person involved in depot LPG activities (technicians & engineers in Maintenance, Projects, Engineering, Logistics, SHE)

Objectives

Attendees will be able to implement the following skills:

- Describe the procedures for sampling liquefied gases related to the quality criteria and their compositions
- List, according to the regulations, the characteristics of the equipment used for storage, transfer, (de-)loading.
- List the operating rules, guaranteeing safety, to ensure good pumping conditions and to remedy malfunctions of the associated equipment
- Appreciate operating instructions for safe operation

Pedagogical & technical resources

- The pedagogy is active and refers essentially to participants' experience. The documentation delivered to the participants as training medium is also a reference document useful after the training session
- Case studies based on industrial situations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

LPG PROPERTIES — 0.5 day

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Origins and main components of different liquefied gas: propane, butane, autogas, ethylene, propylene, butadiene, butenes, ammonia.
Main properties related to storage, transfer and different uses: liquid & gas densities, vapor pressure, water content, corrosivity, odor, toxicity.
LPG's finished products specifications and standard tests.

STORAGE TANKS 1 day

Different types: spheres, bullets, semi buried storage, refrigerated storage, underground storage.
Storage operation: equipment, circuits, instrumentation, water purge, sampling...
Safety equipment: safety valves, level switches, fail safe valve, hydraulic check-valve, excess flow valve, water injection, fire & gas detection. Fire protection.

ROTATING EQUIPMENT FOR TRANSFER 0.75 day

Simplified technology of centrifugal pumps, different types of centrifugal pumps used for LPG transfer. Total head, yield, horsepower and motor intensity. Operation of centrifugal pumps, start-up, shutdown, decommissioning, field checks, troubleshooting and operational solutions. Safe operation.
Simplified technology of reciprocating compressors, field checks, troubleshooting and operational solutions. Safe operation.

LOADING & UNLOADING OPERATIONS 0.75 day

Equipment in connection with loading and unloading facilities. Corresponding safe operating conditions.
Marine bulk loading/unloading:

- Basic tankers description. Different loading stations layouts, isolation flange or grounding.
- Loading arms and safety accessories: manual and hydraulic control, quick coupling, movement detection, breakaway coupling, drainage systems.
- Fixed firefighting equipment on board, on shore, safety checklist.

Tank truck and railcar bulk loading/unloading:

- Truck and railcar loading stations: hoses or loading arms, gas phase/liquid phase connections, quantity measurement and control systems.
- Safety and operating equipment on tank trucks and railcars: vessel's hydraulic or pneumatic valves, high level switch, Gestra type valves, breakaway coupling, drainage systems, fire & gas detection, fixed firefighting equipment.
- Procedures.

PRODUCT HAZARDS & OPERATING PREVENTIVE MEASURES 1 day

Flammability:

- Flammability conditions, flammability limits, different types of gas detectors.

Product hazards for the human being:

- Toxics, exposure limits, Safety Datasheet.
- Low temperature burn.

Fluid behavior hazards:

- Heat addition/removal consequences on closed circuit: pressurization, thermal expansion, vessel under vacuum, temperature drop due to vaporization, icing...
- LPG storage pressure control: vapor condensation, cooling systems.
- BLEVE: description of the phenomenon, different consequences, prevention and mitigation.

Examples of different hazardous situations and correct behavior: normal operating conditions (operator field check, purges, sampling), incidents (leak, fire), startup/shutdown operations, maintenance activities...

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Training - Pumps Operation

PUMPOP-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of centrifugal and positive displacement pumps technology and operating principles

Level

Skilled

Public

- Engineers and technicians involved in centrifugal and positive displacement pump operation or engineering
- Employees in charge of running and checking pumping system

Objectives

Attendees will be able to implement the following skills:

- Describe the behavior and the operation of pumps
- Analyze the technical solutions applied in their units
- Establish a diagnosis of the incidents and participate in the troubleshooting meetings
- Identify essential elements in pump selection

Pedagogical & technical resources

- Functional approach for a better understanding
- Numerous examples and cases studies from the Oil & Gas production industry and analysis of manufacturer file

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PUMPING PREREQUISITES — 0.5 day

Pump performance:

- Hydraulic pumping fundamentals.
- Pressure, flowrate, specific gravity, friction losses, centrifugal force, height/pressure relation, mechanic and

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hydraulic power, vapor pressure curve, energy conservation.

- Pump choice and typical upstream implementations.

TECHNOLOGY & PERFORMANCE — 2 days

Centrifugal pumps:

- Functional approach: study step by step of the main functions; process (impeller, wear rings, balancing, pump body shape...); sealing: mechanical sealing, typical arrangements (single, dual, dry seal), selection according API 382 standard, materials, type, friction face heating; support (axial and radial, thrust and journal bearings); lubrication (oil and grease...); monitoring (rotor displacement, vibrations, temperature, pressure...).
- Building step by step a monocellular centrifugal pump.

Positive displacement pumps:

- Different types of pumps: rotary and reciprocating pumps.
- Operating principle and utilization of the different types of pumps.
- Influence of clearance, internal leaks, nature of product on flow rate and pressure.
- Flow rate control.
- Installation guidelines: position of tanks, line diameters, metering drums, pulsation dampeners, pressure valves.

Particular choices:

- Coupling and driven machines.
- ATEX: material consequences.

OPERATION & MONITORING — 1.5 days

Preparation: filling, draining; spare pumps: heating, ancillaries.
Start-up/shutdown: priming, controls, hammer shock, risks for process and pump.
Surveillance: parameters (vibration levels, noises, bearing housing temperature, motor intensity, pressures); impact of stream parameters; hazards.
Parallel and series operations: risks, dysfunction.

TROUBLESHOOTING — 0.75 day

Troubleshooting of most frequent problems (cavitation, priming situation, low flowrate...).

SAFETY IN OPERATION — 0.25 day

Leaks, vibrations, feed, overcharge...
Analysis of industrial incidents and accidents.

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Training - Reservoir Fluid Properties - PVT

PVT-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical understanding of Oil & Gas reservoir fluids properties and related behavior as well as corresponding data and laboratory PVT experiments

Level

Knowledge

Public

Newly-hired and 2- to 3-year experienced reservoir engineers willing to deepen their knowledge in reservoir fluid properties and PVT models; geoscientists, petroleum engineers and production engineers moving towards reservoir engineering

Objectives

Attendees will be able to implement the following skills:

- Discuss main principles of thermodynamics applied to reservoir engineering studies
- Describe reservoir fluids and discuss corresponding fundamental PVT properties
- Describe the PVT studies performed in order to get PVT data
- Describe and apply the process to build PVT models from experimental data, especially for reservoir simulation

Pedagogical & technical resources

- Interactive lectures and exercises
- Analyzing a real PVT report
- Hands-on practices using state-of-the-art EOS package for PVT matching

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF THERMODYNAMICS — 1.5 days

Petroleum fluids genesis.
Chemical composition of petroleum fluids:

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- Hydrocarbon families.
- Compositional presentation of reservoir fluids.

Thermodynamics of petroleum fluids:

- Pure component, binary mixture, multi-component systems. Phase behavior.
- Hydrocarbon fluids: under saturated oil, saturated oil, dry gas, wet gas, retrograde gas. Phase envelope.

Measurements:

- Sampling: bottom hole and surface sampling; representativity and validity of sampling; analysis; PVT studies (Oil & Gas condensate).

PROPERTIES OF HYDROCARBON FLUIDS — 2.5 days

Thermodynamics: mixture equilibrium, fluids classification.
Liquid-vapor equilibrium:

- Real equilibrium, thermodynamics potential, fugacity.
- Saturation pressure, formation volume factor, density, compressibility, viscosity.

Equation of state:

- Peng-Robinson, Soave-Redlich-Kwong.
- Liquid-vapor calculation.

Analytical representation: properties of light and heavy cuts.
Fluid modeling: PVT matching.
Fluid synthesis: gravity segregation, field cases, miscibility.
Downstream data: data for reservoir simulator and process.

PVT MODELING — 1 day

Matching a PVT model to experimental data using a PVT EOS package.

Sessions

Rueil-Malmaison - From 10/05/2026 to 10/09/2026 — **3790 €/HT**

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Training - PVT Modeling

PVTMOD-EN-P | Face-to-face only | 5 days

This course provides an extensive and practical understanding for analyzing PVT reports, handling data and defining PVT models for use in compositional and black oil simulations

Level

Knowledge

Public

Reservoir engineers and petroleum engineers willing to acquire advanced knowledge about PVT modeling

Objectives

Attendees will be able to implement the following skills:

- Analyze PVT reports and discuss and handle PVT data
- Build a PVT model in order to represent fluid behavior with respect to available and validated PVT data
- Match a PVT model

Pedagogical & technical resources

- Interactive courses and exercises
- Hands-on practices using dedicated modeling software BEST™ or PVTi™ or PVTFlow™
- Mini-project
- Software used during workshops: with courtesy of Beicip-Franlab and Schlumberger

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FLUID PROPERTIES & THERMODYNAMIC MODELING — 2 days

Fluid properties:

- PVT properties of pure components and mixtures.
- Functions and variables.
- Properties of reservoir fluids.

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Introduction to PVT modeling software.
Thermodynamic models and equilibrium:

- Functions and variables.
- EOS and algorithms.
- Component properties and lumping.
- Liquid-vapor thermodynamic equilibrium.

RESERVOIR, FIELD CASES & PROJECT — 3 days

Measurements:

- Sampling.
- Analysis.
- Standardization of data.
- PVT experiments.
- Gas injection specific data.

Fluid modeling:

- PVT compositional modeling.
- Matching of experimental data.
- Physical consistency.
- Gravitational segregation.
- Miscibility.

Field cases:

- Compartmentalization.
- Non-classical GOR profile.
- Reservoir stripping.

Data for reservoir simulation:

- Compositional.
- Black oil (standard, extended).

Project and exercises:

- From the PVT Report do the PVT model.
- Quality check of the data.
- Oil fitting.
- Gas fitting.
- Discussions and conclusions.

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Training - Cracking and Chemical Treatments of Purification

RCIVAPO-EN-P | **Face-to-face only** | **5 days**

This course brings technical information on the steamcracker sections focused on chemical transformations: feed cracking, cracked gas purification, hydrogenations or purification stages on a solid (drying)

Level

Skilled

Public

Operating personnel in steamcracking plants: experienced filed operators, panel operators, shift leaders and all technicians involved in the operation of these sections

Objectives

Attendees will be able to implement the following skills:

- Identify key physicochemical characteristics of the process
- Describe the process steps
- Justify process and operating safety measures

Pedagogical & technical resources

- The content of this course can be adapted to the customer's needs. The pedagogy is focused on the units concerned, under cover of a secrecy agreement if necessary
- Case studies done in groups based on typical running situations presented in the course
- Possible contribution of experienced staff in the daily operation of the plant

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BLOCK DIAGRAM OF THE STEAMCRACKER UNIT — 0.25 day

Roles of the various sections.
Feedstock origins, products types, yields.

MAIN PETROCHEMICAL INTERMEDIATES — 0.25 day

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Definition of hydrocarbon families. Feedstock composition.
Potential outlets and main industrial uses of olefinic, diolefinic and aromatics hydrocarbons.

CHEMICAL REACTIONS & CATALYSIS — 1 day

Chemical reactions, chemical reaction uses for the mass balance.
Studies of the thermodynamic conditions to make the chemical reaction feasible.
Chemical reactions limited by the chemical balance, rules to shift the chemical balance.
Rate of chemical reactions. Effect of a catalyst, catalyst behavior. Poisons and inhibitors.
Nota: these basic elements have been provided throughout the course as they enhance the understanding of the different topics.

STEAMCRACKING — 1 day

Onsite unit description; operating conditions of the different sections, product yields.
Analysis of technical characteristics of desired transformations.
Elements of pyrolysis monitoring: definitions of the severity and the selectivity.
Influence of the operating parameters/pressure, temperature, flowrate, steam dilution ratio on the unit performances.
Impact of the feedstock origin on product yields.
Regulation and advanced process control.

CRACKED GASES PURIFICATION — 0.25 day

Main washing systems for cracked gases: selection of systems implemented.
Amine washing system: absorption and regeneration.
Caustic washing system and treatment of waste caustic stream.
The sequence of washing stages in the scrubber.
Influence of the operating parameters on the quality of washing.

DRYING OF CRACKED GASES — 0.25 day

Adsorption-desorption balance.
Operation of cracked gases dryers during the drying and regeneration steps, drying optimization (temperature/run length relationship).

TREATMENTS WITH HYDROGEN — 1.5 days

Role and purpose of the different hydrogenation processes, chemical reaction characteristics, main types of catalysts implemented.
Purification of hydrogen by methanation (if relevant).
Studies of selective hydrogenation units for C2, C3 and C4 cuts and hydrotreatment units for pyrolysis gasolines: analysis of the operating conditions of the unit, operating parameters of the plant, case studies for unit adjustment.

DISTURBANCES - INCIDENTS — 0.5 day

Incidents on the furnace: loss of feed flowrate, high temperature on one or more coils - Loss of firing - Loss of quench water...
Incidents on cracked gases scrubber : loss of caustic make-up, abnormal temperature of the caustic, loss of water washing at the top of the scrubber.
Incidents on dryers: insufficient regeneration, moist gas at outlet.
Incidents in the methanation section (if relevant): loss of the cold box and breakthrough of ethylene to the reactor.
Incidents on selective hydrogenations: management of feedstock inhibitors, changes of hydrogen quality, loss of catalyst activity and/or selectivity.
Nota: this part is delivered through case studies and analysis of feedback of on-site incidents.

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Training - Reservoir characterization and modeling

RCM-EN-P | Face-to-face only | 60 days

This course provides a comprehensive, practical knowledge of reservoir characterization and modeling workflow, via hands-on activities and case studies with the aim of bridging the gap between static geological characterization and dynamic reservoir behavior

Level

Skilled

Public

Geoscientists, engineers newly hired or 2-3 years experienced, experienced technicians involved in multidisciplinary teams, willing to widen their knowledge and acquire practical know-how in geological modeling

Objectives

Attendees will be able to implement the following skills:

- understand the analysis methods and techniques applied to reservoir modeling with related challenges
- analyze and interpret a dataset and integrate it in order to elaborate a reliable static model
- build a consistent geological static model with heterogeneities affecting fluid flow and production
- assess the uncertainty and risks in order to reduce them and thus optimize investments

Pedagogical & technical resources

- Hands-on activities and simulations on real cases
- Emphasis on practical work to develop participants' autonomy and appropriate decisions
- Both personal and group work, team-building, group discussion in results and workflows
- Software tools used in the petroleum industry
- Software used during workshops: with courtesy of Beicip-Franlab, Schlumberger

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including final project at the end to simulate operational situation to be presented to a jury

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INFORMATION

Lectures, hands-on activities and case studies are distributed in several modules of 1-2 weeks long.
Training content presents a clear operational orientation in order for participants to get familiar with specific techniques via an extensive exposure to simulations on real cases allowing them to anticipate the problems they will have to cope with later in their own projects.

PART 1: RESERVOIR CHARACTERIZATION TOOLS — 30 days

Introduction to reservoir characterization. (1 week)
Well logging & qualitative log interpretation. (1 week)
Stratigraphy and sedimentology of siliciclastic reservoirs. (1 week)
Seismic interpretation and attributes analysis workshop: qualitative and quantitative methods. (1 week)
Petrophysical properties: core, log and test data integration for reservoir modeling. (1 week)
Fundamentals of facies analysis & rock-typing. (1 week).

PART 2: RESERVOIR MODELING & VOLUMETRICS — 20 days

Geological modeling workshop for integrated reservoir studies. (2 weeks)
Hydrocarbons accumulations, reserves estimation, risk analysis and uncertainties. (1 week)
Naturally-fractured reservoirs: static and dynamic modeling. (1 week).

PART 3: FINAL PROJECT WORKSHOP — 10 days

Final project. Hands-on workshop (team work). (2 weeks)
Presentation and jury.

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Training - Light Cuts Processing

REF1-EN-P | Face-to-face only | 5 days

This course provides a thorough knowledge of operation and refining processes involved in gasoline and diesel production

Level
Knowledge

Public
Engineers and supervisors involved in light and middle distillates processing units

Objectives
Attendees will be able to implement the following skills:

- Link processing units operation to various constraints set by product specifications
- Analyze operating parameters and their impacts
- Acquire the basics for operating processing units
- Know about the latest developments in these processes

Pedagogical & technical resources
Numerous exercises and case studies based on real industrial situations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PETROLEUM PRODUCTS — 0.25 day

Origin and characteristics of naphtha cuts.
Octane properties and hydrocarbon (HC) families. Quality requirements.
Gasoil and Diesel oil: cetane, cold flow and other properties.

CATALYTIC REFORMING — 1.25 days

Refinery octane pool: processes for octane improvement-gasoline sources.
Process basics: thermodynamics and kinetics of chemical reactions. Hydrogen production.
Role and types of catalysts - Activation, ageing, poisoning.

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Industrial units: process flow scheme of SR and CCR, operating conditions, performances.
Operating variables (WABT, WHSV, H2/HC ratio, recycle gas composition, pressure).
Management of hydrogen production, impact of feed properties and operating conditions.
Shutdown, regeneration and startup.
Catalyst regeneration steps and control.

ISOMERIZATION OF LIGHT GASOLINES — 0.5 day

Integration in the gasoline production scheme. Isomerization reaction characteristics.
Different types of catalysts: properties, activation, poisons, operating conditions.
Industrial process: principle and specific constraints.
Downstream separation main types and impact of recycling.

HYDROREFINING PROCESSES — 2 days

Removal of impurities, hydrogenation of unsaturated compounds: chemical reactions characteristics.
Role and types of catalysts in relation with feeds, hydrogen consumption and required results.
Operating conditions and main variables (temperature, WHSV, H2/HC ratio, PPH2, etc.).
Catalyst loading map; cycle length optimization.
Main refining applications and specific operating features, example of gasolines and middle distillates desulfurization.

SWEETENING OF LIGHT CUTS — 0.25 day

Role of sweetening process, basic chemical reactions, nature and efficiency of the catalyst.
Main applications for LPG's, naphtha's and kerosene cuts.
Operating conditions: temperature, caustic concentration, mixing efficiency, air injection, etc.

SULFUR RECOVERY — 0.75 day

Refinery sulfur balance. Importance of sulfur recovery chain processes.
Amine scrubbing chemical reactions and operating parameters.
Industrial process and operating parameters as air/H2S ratio, steam production.
Claus chemical reactions.
Process control and impact on environment: causes for sulfur emission increase.
Tail gas treatments: process principles, operating conditions.

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Training - Heavy Cuts Processing

REF2-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge of refining processes available to upgrade heavy cuts into lighter ones

Level
Knowledge

Public
Engineers and supervisors interested or involved in the processing of heavy cuts

Objectives
Attendees will be able to implement the following skills:

- Understand differences between refining conversion processes with regard to planning, operations and investment issues
- Analyze the operating parameters of these conversion processes
- Acquire the basics for operating cracking units
- Know about on the latest developments in heavy cuts processing

Pedagogical & technical resources
Case studies based on real industrial situations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF CONVERSION PROCESSES — 0.25 day

Origins and characteristics of conversion unit feeds.
Different types of conversion processes (principles, performance, operating ranges, economics): thermal cracking processes, catalytic cracking without hydrogen, catalytic cracking with hydrogen.

THERMAL CONVERSION PROCESSES — 1.5 days

Visbreaking and effects on quantity and stability of heavy fuel oils.
Delayed coking: process characteristics, process flow diagram, purification of the cracked products with

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hydrogen and end destination.
Management of coke drum switch and main steps of the decoking procedure, coke handling.
Flexicoking and fluid coker: principle, integration in the refinery and power.

CATALYTIC CRACKING — 1.25 days

Main fluid catalytic cracking processes.
Catcracking feed characteristics.
Mechanisms of catalytic cracking reactions and mode of action of FCC catalysts.
Yields and characteristics of FCC effluents with overview of purification treatments: propylene recovery, alkylation, ETBE and gasoline pool, LCO hydrotreatment.
Analysis of FCC operating balances.
Summary of operating parameters in the reaction section and in the regenerator.
FCC alternates to treat residues (R2R, HOC, etc.).
Maximization of C3 and C4 olefins, gasoline or cracked gasoil (LCO) production.
Presentation of different process schemes.

DISTILLATE HYDROCRACKING — 1.25 days

Different reactions of the hydrocracking process.
Catalysts: hydrotreating and hydrocracking; poisons and regeneration.
Hydrocracking processes: different types, process flow diagram, operating conditions.
Analysis of hydrocracking operating: parameters, hydrogen balance, sulfur balance.
Associated unit: hydrogen production, sulfur recovery.
Product yields and quality utilizations.

RESIDUE PROCESSING — 0.5 day

Overview of existing processes to upgrade vacuum residues: hydrotreatment, hydroconversion.
Associated units.
Refinery configurations with deasphalting unit.

LUBE BASE STOCKS MANUFACTURE — 0.25 day

Classification and required properties of base oils.
Main lube base stocks manufacturing schemes: vacuum distillation unit, deasphalting, extraction, dewaxing, hydrofinishing.

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Training - Catalytic Reforming for Refining and Petrochemicals

REFCAT-EN-P | **Face-to-face only** | **5 days**

This course provides a thorough technical understanding of semi-regenerative and continuous regenerative catalytic reforming processes, for refining and petrochemistry

Level

Skilled

Public

- Engineers, senior operations personnel or technical supervisory staff involved in the operation, optimization or monitoring of hydrogen and aromatics production units
- Engineers from research centers and engineering companies involved in the different aspects of the operation and process control of these processes

Objectives

Attendees will be able to implement the following skills:

- Cite the main physico-chemical characteristics of the process
- Describe the steps of the process
- Justify process and operational safety measures

Pedagogical & technical resources

- Applications, teamwork, case studies and interactive workshops based on typical real situations
- The duration and content of the training course can be customized to the needs of the client site and the profile of the participants
- Possible contribution of experienced staff reporting his industrial experience of the operation on a daily basis
- Parts of or whole session adaptable to virtual classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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THE CATALYTIC REFORMER WITHIN THE REFINERY SCHEME — 0.5 day

Quality specifications of gasolines; reformulated gasoline and future trends.
Octane improving processes, integration within the refining processes.
Needs in hydrogen. Aromatic complex overview, need for benzene, toluene and xylenes.

CATALYTIC REFORMING REACTIONS & CATALYSTS — 1 day

Review of the characteristics of all the chemical reactions: thermodynamics and kinetics.
Influence of the operating parameters on the production of aromatics, hydrogen, octane number, and other yields. Consequences for SR and CCR units.
Catalyst properties: role of the acidic and metallic functions, of the support, of the different promotors and their impact on chemical reactions and yields. Water/chlorine balance and management.
Poisons and ageing factors. Activity follow up and cycle length prediction for semi-regenerative units.
Catalyst regeneration. Management of each step for an optimal activity recovery for SR units. Operating parameters for CCR regeneration loops.

OPERATING PARAMETERS OF A CATALYTIC REFORMER — 1 day

Process flow diagrams and operating parameters of semi-regenerative (SR) and Continuous Catalyst Regeneration (CCR) units. Main control loops. Typical range of yields.
Material balance. Energy consumption.
Operating variables: WABT, WAIT, H2/HC ratio, flow rates, treat gas characteristics.
Main equipment and metallurgy.
Specific features for low pressure equipment. Moving bed technology, recontacting section, catalyst circulation: lifts, ΔP control, seal legs, nitrogen loops for regeneration, etc.
Analyzers and process control.

OPERATION & OPTIMIZATION FOR CATALYTIC REFORMING — 1 day

Monitoring the operating variables and optimization, for semi-regenerative and regenerative units. Operation case studies.
Adjusting to changes in feedstocks origins, N+2A.
High severity of the CCR towards optimized yield in Aromatics. Performance follow-up.
Maximizing the performances of the unit under constraints or limit conditions.
Main steps for start-up and shutdown.

TROUBLESHOOTING FOR CATALYTIC REFORMING — 0.5 day

Case studies: main symptoms encountered in operation, diagnosis and remedies.
Specific troubles of CCR units linked to catalyst circulation and regeneration loops.
Catalyst regeneration problems.
ESD, main safety sequences.

THE REFORMER IN THE AROMATIC COMPLEX — 1 day

Outlets and main uses of BX (Benzene, Xylenes), ethylbenzene.
Basic scheme to upgrade benzene and paraxylene. Aromatic loop.
Transformation processes involved: hydrodealkylation, disproportionation, transalkylation and isomerization.
Associated separation processes.
Operating conditions for a typical arrangement.

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Training - Refresher Course for Production Operator

REFREOP-EN-P | **Face-to-face only** | **15 days**

This course aims to increase the knowledge in oil/gas/water processing operations, as well as acquiring or validating fundamentals of rotating machines and static equipment operation

Level

Knowledge

Public

Experienced operations personnel who need to validate or strengthen their technical knowledge

Objectives

Attendees will be able to implement the following skills:

- Efficiently operate Oil & Gas production units, solve operational problems, analyze cause-and-effect relationships related to an action or operation, detect malfunction and anticipate process deviation
- Better monitor rotating machines and their ancillaries by focusing on their critical parameters and equipment
- Help extend equipment uptime
- Take into account machine and process safety aspects
- Optimize static equipment operation, taking into account their technology as well as the related process safety aspects

Pedagogical & technical resources

- Numerous exercises and applications concerning the operation of production facilities
- The course can be adapted according to the experience and/or actual equipment operated by the participants

Assessment of achievements

- Les stagiaires sont évalués au long de la formation au travers de phases applicatives et d'échanges avec le formateur
- Une évaluation à chaud peut également être effectuée en fin de formation et/ou en fin de module par des tests visant à vérifier la compréhension et l'intégration par les apprenants des connaissances correspondant aux objectifs de la formation

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OIL, GAS & WATER PROCESSING & OPERATOR DUTIES — 5 days

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Wells: performance, activation, monitoring and operation.
Oil treatment: multi-stage separation, dehydration, desalting, treatment of emulsions, treatment of foaming, sweetening.
Gas treatment: sweetening, dehydration, NGL and condensate recovery.
Water treatment: production and injection water treatment.

ROTATING EQUIPMENT OPERATION & MONITORING — 5 days

Centrifugal and volumetric pumps, centrifugal and reciprocating compressor:

- Technology, seal (gas or oil) system, ancillary circuit, UCP/DCS HMI, safety system.
- Normal operation.
- Troubleshooting.

Drivers: electrical motors, Diesel engines, gas turbines. Associated safety system.

STATIC EQUIPMENT USED IN OIL & GAS PRODUCTION — 5 days

Wells: from downhole to choke valve, manual valves, automatic valves, safety system, control cabinet.
Separator, distillation column, dehydrator and desalter, wash tanks: technology, control system & safety equipment.
Thermal equipment:

- Heat exchanger: shell and tube, plate heat exchanger, air cooler.
- Furnaces and boiler.
- Technology, operation, control system and safety equipment.

Storage tank: floating roof, fixed roof. Associated safety equipment.

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Training - Reservoir Engineering

RESENG-EN-P | Face-to-face only | 64 days

This course provides a comprehensive practical knowledge of fundamental concepts of Reservoir Engineering, through hands-on activities, case studies and projects

Level

Skilled

Public

Newly hired or 2-3 years experienced reservoir engineers, for geoscientists, petroleum engineers and production engineers

Objectives

Attendees will be able to implement the following skills:

- Describe reservoirs characterization and modeling workflow
- Discuss fluids properties and describe the PVT modeling process
- Discuss principles of well testing and well test interpretation
- Discuss the mechanisms of primary recovery and secondary recovery and their performance
- List main Enhanced Oil Recovery methods and discuss mechanisms and performance
- Discuss fundamentals of reservoir management and describe reservoir monitoring techniques
- Define the concepts of resources, reserves and corresponding classification, integrating risks and uncertainties
- Discuss fundamentals of dynamic reservoir simulation, and build a simple black-oil reservoir simulation study

Pedagogical & technical resources

- Numerous hands-on and workshop on real data sets
- Individual and teamwork to develop autonomy and ability of decisions
- Final teamwork workshop on optimizing an oil field development project integrating real data, field data
- Software used during workshops: with courtesy of Beicip-Franlab, Kappa Engineering and Schlumberger

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

PART 1: FUNDAMENTALS OF RESERVOIR GEOLOGY — 15 days

Introduction to reservoir characterization.
Petrophysics - Reservoir properties from cores & logs evaluation.
Reservoir modeling workshop.

PART 2: FLUIDS, WELLBORE INTERFACE & WELL PRODUCTIVITY, WELL TESTING — 15 days

Reservoir fluid properties.
Drilling and completion - Wellbore interface and well productivity.
Well testing and well test analysis.

PART 3: RESERVOIR DRIVE MECHANISMS & RESERVOIR MANAGEMENT — 15 days

Drive mechanisms - Enhanced Oil Recovery.
Reservoir management.

PART 4: RESERVOIR SIMULATION & FINAL DEVELOPMENT PROJECT WORKSHOP — 19 days

Dynamic reservoir simulation.
Final teamwork workshop - 2 weeks of hands-on workshop focused on optimizing an oil field development project integrating real laboratory data, field data and simulation model.

Sessions

Rueil-Malmaison - From 09/14/2026 to 12/11/2026 **41430 €/HT**

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Training - Analysis of Technological Risks

REVSEC-EN-P | Face-to-face only | 5 days

This course makes it possible to select the appropriate safety reviews and know how to implement them

Level
Skilled

Public
Personnel responsible for analyzing HSE risks during design or on existing installations

Objectives
Attendees will be able to implement the following skills:

- prioritize risk analysis results
- list the preparatory elements of the security reviews according to the context (project nine, modifications)

Pedagogical & technical resources

- Simulation of hazard reviews on simple processes
- Use of HAZOP Manager© if requested in advance

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1 - RISK & ACCEPTABILITY CRITERIA — 0.5 day

Risk representation - Risks to people, property and the environment:

- Potential hazard definition, risk levels, risk matrix, acceptable residual risk.
- Safety reviews and risk analysis methods.

Objectives and implementation conditions: integration into the project planning.
Overview of the different reviews and methods. Impact on the Safety Management System (SMS).
Selection of the most appropriate method according to the context: new project, existing site and modifications, updating of hazard studies, authorization to operate...

MODULE 2 - HAZID METHOD (HAZARD IDENTIFICATION) — 1 day

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Organization: identification of attendees, scheduling the review, documentation, preparation, keywords list development.
Animation and conduct of reviews. HAZID review simulation on a simple case.
Preparation of the review report, follow-up and closure of actions/recommendations.
Fields of application of the HAZID method: APR, design reviews, constructability.

MODULE 3 - HAZOP METHOD (HAZARD & OPERABILITY) 1.5 days

Organization: identification of attendees, scheduling the review according to the studies development phase, documentation, preparation of the review, cutting of the PIDs.
Animation and conduct of reviews. HAZOP review simulation on a simple case.
HAZOP quantified.
Preparation of the review report, follow-up and closure of actions/recommendations.
What-if - Check-list: complementarity with the HAZOP method, interests and limits.

MODULE 4 - LOPA METHOD (LAYER OF PROTECTION ANALYSIS) 1 day

Complementarity with HAZOP review. Principle of LOPA.
Concept of safety barriers - Determination of IPL (Independent Protection Layers).
Evaluation of the need for a SIF (Safety Instrumented Function).
Determination of the required SIL (Safety Integrity Level). Understanding of calculation elements (supplier data, databases).
Preparation/animation of reviews, according to IEC 61 511. Simulation of a LOPA on a simple case.

MODULE 5 - USE OF QRA (QUANTITATIVE RISK ASSESSMENT) 1 day

Quantitative Risk Assessment (QRA):

- Overview of the method. Evaluation of the consequences. Probability, IRPA, societal risk, FN curves.
- Scenario determination, Fault Tree analysis (FTA), Event Tree Analysis (ETA).
- Bow tie: principle, construction and use. Safety barriers.

Use of QRAs: determination of design principles and criteria for the safety of an installation.
HSE concept. DAL (Design Accidental Loads).

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Training - Rig Inspection (Audit)

RIGINS-EN-D | Distance only | 5 days

To provide in-depth knowledge in the rig selection, inspection (audit) and acceptance

Level
Expert

Public
Drillers, Tool pushers, supervisors, drilling engineers and rig managers involved in rig selection, inspection & acceptance

Objectives
Attendees will be able to implement the following skills:
Attendees will be able to implement the following skills:
- Early detection of equipment or system issues or specification discrepancies to prevent project delays and start-up problems,
- Identification and resolution of equipment risks and certification issues.
- Prevention of costly corrective actions and downtime due to equipment failures.

Pedagogical & technical resources
- Some equipment and cutaway tools are available at IFP.
- Summary notes prepared and presented by participants.
- Use of full-size simulator
- Case studies according to international standards

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
Engineering or operational exposure

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO RIG SYSTEMS & SPECIFCATIONS — 0.25 day

Rig types & categories.
Main rig function, systems & requirements:
- Power, hoisting, rotation, fluids & circulation systems.

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- Solid control equipment.
- BOPs & well-controlled equipment.
- Rig instrumentation.

Rig sizing & capacities.

RIG INSPECTION CONCEPTS 0.75 day

Rig inspection concepts & basics:

- Standards for rig inspection.
- Guidelines for rig inspection & acceptance tests.
- Criteria for rig inspection.

RIG INSPECTION & ACCEPTANCE CRITERIA 2.75 days

Drilling Equipment: hoisting, drill floor & pipe handling equipment.
Mud system: pumps, mixing equipment & solid control equipment.
Well Control Equipment: rams preventers, annular preventer, diverter, choke & kill lines & manifolds and BOPs control unit (accumulators).
Drill String: failures, inspection methods – NDT, dimensional inspection, visual inspection, magnetic particles, electromagnetic inspection & ultra sonic inspection.
Power System (diesel / electric): Diesel Engines, Main Generators, SCR System, AC/DC Motors.
Lighting Systems, Safety and Environment Inspection, Fire Fighting Equipment, Gas Detection Equipment.
Lifting and Load Handling Equipment.
House keeping.
First Aid.
Storage Capacity.
Accommodation & Living Facilities.
Rig Management System.
Rig Inventory.

KNOWLEDGE ASSESSMENT 0.25 day

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Training - Rig Inspection (Audit)

RIGINS-EN-P | Face-to-face only | 5 days

To provide in-depth knowledge in the rig selection, inspection (audit) and acceptance

Level
Expert

Public
Drillers, Tool pushers, supervisors, drilling engineers and rig managers involved in rig selection, inspection & acceptance

Objectives
Attendees will be able to implement the following skills:
Attendees will be able to implement the following skills:

- Early detection of equipment or system issues or specification discrepancies to prevent project delays and start-up problems,
- Identification and resolution of equipment risks and certification issues.
- Prevention of costly corrective actions and downtime due to equipment failures.

Pedagogical & technical resources
- Some equipment and cutaway tools are available at IFP.
- Summary notes prepared and presented by participants.
- Use of full-size simulator
- Case studies according to international standards

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
Engineering or operational exposure

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO RIG SYSTEMS & SPECIFCATIONS — 1.25 days

Rig types & categories.
Main rig function, systems & requirements:

- Power, hoisting, rotation, fluids & circulation systems.

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- Solid control equipment.
- BOPs & well-controlled equipment.
- Rig instrumentation.

Rig sizing & capacities.

RIG INSPECTION CONCEPTS — 0.75 day

Rig inspection concepts & basics:

- Standards for rig inspection.
- Guidelines for rig inspection & acceptance tests.
- Criteria for rig inspection.

RIG INSPECTION & ACCEPTANCE CRITERIA — 2.75 days

Drilling Equipment: hoisting, drill floor & pipe handling equipment.
Mud system: pumps, mixing equipment & solid control equipment.
Well Control Equipment: rams preventers, annular preventer, diverter, choke & kill lines & manifolds and BOPs control unit (accumulators).
Drill String: failures, inspection methods – NDT, dimensional inspection, visual inspection, magnetic particles, electromagnetic inspection & ultra sonic inspection.
Power System (diesel / electric): Diesel Engines, Main Generators, SCR System, AC/DC Motors.
Lighting Systems, Safety and Environment Inspection, Fire Fighting Equipment, Gas Detection Equipment.
Lifting and Load Handling Equipment.
House keeping.
First Aid.
Storage Capacity.
Accommodation & Living Facilities.
Rig Management System.
Rig Inventory.

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 12/07/2026 to 12/11/2026	**4320 €/HT**
Pau - From 12/06/2027 to 12/10/2027	**4420 €/HT**

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Training - Reserves Evaluation - Risks and Uncertainties

RISKUN-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical understanding of methods of evaluation and classification of hydrocarbons resources and reserves (PRMS, SEC) and related issues, especially risks and uncertainties and how to assess/mitigate these risks and uncertainties

Level

Knowledge

Public

Geoscientists, reservoir engineers, asset managers, economists, government representatives interested or involved in resources and reserves estimation and reporting, as well as related risks & uncertainties assessment

Objectives

Attendees will be able to implement the following skills:

- Describe E&P field development projects workflow and related decision making process
- Define concepts of resources and reserves and describe the Petroleum Resources Management System (PRMS) and Securities and Exchange Commission (SEC) system
- Identify main sources of risks and uncertainties and discuss methods about integrating risks and uncertainties into resources and reserves evaluation: structural uncertainties, geological uncertainties, dynamic uncertainties, geostochastic modeling, etc

Pedagogical & technical resources

Interactive courses and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO FIELD DEVELOPMENT PROJECTS — 1 day

E&P field development projects workflow and decision making process.
Fundamentals of petroleum economics and economic criteria (NPV, IRR...).
Oil & Gas resources and reserves definitions and classification:

- SPE definitions and guidelines. Petroleum Resources Management System (PRMS).

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- SEC definitions and guidelines.

RESERVOIR CHARACTERIZATION & ACCUMULATIONS EVALUATION — 1 day

Overview of rock and fluid properties.
Basics of reservoir characterization and geomodeling.
Evaluation of Oil & Gas accumulations.

RESERVES EVALUATION — 1 day

Review of Oil & Gas reservoirs production mechanisms and related expected recovery factors.
Review of methods for estimating recovery:

- Analogs.
- Material balance.
- Decline curves analysis.
- Dynamic reservoir simulation.

RISKS & UNCERTAINTIES — 2 days

Concepts of risks and uncertainties.
Notions of probability and probability distribution functions.
Decision trees.
Uncertainties:

- Statistical description of data and common statistical distributions.
- Monte-Carlo method.

Uncertainties within E&P development projects:

- Structural, geological and dynamic uncertainties.

Uncertainties assessment - Experimental design and response surface methodology.

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Training - Fundamentals of Facies Analysis and Rock-Typing

ROCKTYP-EN-P | Face-to-face only | 5 days

This course provides participants with an integrated approach to facies analysis and rock-typing combining logs, core description, and laboratory petrophysical data

Level

Awareness

Public

Geologists, geophysicists and reservoir engineers involved in integrated reservoir studies

Objectives

Attendees will be able to implement the following skills:

- Identify electrofacies from logs
- Identify log signatures and facies association
- Define rock-types with petrophysical data (logs and laboratory data)
- Define Petrofacies from various relationships like Reservoir Quality Index, Winland R35 for net pay determination and other poro-perm transforms

Pedagogical & technical resources

Interactive presentations, practical exercises and hands-on activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW ON ELECTROFACIES ANALYSIS & ROCK-TYPING — 1 day

Non-supervised approach and supervised approach for electrofacies analysis.
Preliminary quality control of logs with hands-on.
Integration of core description.
From electrofacies to rock-types with hands-on.

NON-SUPERVISED ANALYSIS — 1 day

Probabilistic and neural network approaches.

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Hands-on non-supervised electrofacies analysis.
Key points in non-supervised analysis.

SUPERVISED ANALYSIS — 1 day

Hands-on supervised analysis with probabilistic approach.
Key points and pitfalls in supervised analysis.
Electrofacies analysis workflow.
Hands-on integration of electrofacies in sequence stratigraphy analysis.

ROCK-TYPES DETERMINATION — 2 days

Porosity and permeability modeling (hands-on).
Rock quality index (RQI, FZI, etc.).
Rock-typing with petrophysical data and capillary pressure curves: hands-on.
Workflow for electrofacies to rock-type assignments.

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Training - Rotating Equipment

ROTMACH-EN-P | Face-to-face only | 5 days

This course provides a good knowledge of the performance, technology and operation of rotating machinery

Level

Knowledge

Public

Engineers, supervisors and technicians involved in rotating machinery operation, maintenance or engineering

Objectives

Attendees will be able to implement the following skills:

- recognize the technology of major rotating machines
- specify how they operate
- list the selection criteria of the equipment in relation to its operation and maintenance taking into account costs and security aspects

Pedagogical & technical resources

- Study of actual equipment and mechanical parts in the workshop
- Use of drawings, datasheets, pictures and videos of actual equipment
- Pumping test bench practical works
- Incidents analysis and improvement proposals

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PUMPS — 2 days

Different types of pumps, applications in the process industry.
Operating principle and technology of positive displacement pumps.
Performance curves of a centrifugal pump: head, efficiency, shaft power, NPSH.
Technology of centrifugal pumps, different layouts.
Mechanical seals: different arrangements, related auxiliary systems.

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Operating limits: cavitation, hammering, priming issues, parallel run, operating range.
Start-up and operation monitoring.
Troubleshooting and common failures. Safety and prevention.

RECIPROCATING & ROTARY POSITIVE DISPLACEMENT COMPRESSORS — 1 day

Different types of positive displacement compressors.
Reciprocating compressor architecture: number of stages, cylinders, overall layout, standard applications.
Technology of main components and auxiliaries.
Influence of process conditions on compressor performance: suction or discharge pressure, suction temperature, gas composition.
Flow control, specific safety devices. Start-up procedures. Troubleshooting.

CENTRIFUGAL & AXIAL COMPRESSORS — 1 day

Description of different types of centrifugal and axial compressors: horizontal/radial split casing centrifugal compressors, axial compressors, integrally geared compressors.
Technology of main components and auxiliaries.
Compression mechanism through a compressor stage. Performance curves vs operating conditions.
Operation limits: low and high speed limits, stonewall, surge, typical anti surge protection systems.
Flow control: throttling valve, rotation speed control, inlet guide vanes. Specific precautions for start-up.
Troubleshooting. Safety.

TURBINES — 1 day

Description of different types of turbines, typical applications.
Steam turbines, gas turbines, turbo-expanders.
Operating principle, classification and technology: exhaust conditions, expansion mechanism through a turbine stage.
Operation: start-up and performance monitoring. Flow control, safety devices.

Sessions

Pau - From 10/19/2026 to 10/23/2026 — **4240 €/HT**

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Training - Reactive transport and geological CO2 Storage

RTCO2-EN-P | Face-to-face only | 5 days

This training focuses on the mechanisms of reactive transport in CO_2 geological storage contexts, combining flow processes, geochemical reactions and rock–fluid interactions. Through practical case studies, participants will analyze CO_2 migration, dissolution and mineralization in subsurface reservoirs to visualize reactive fronts and rigorously assess the performance of CO2 geological storage scenarios

Level

Skilled

Public

Geoscientists, reservoir engineers, petroleum engineers

Objectives

Attendees will be able to implement the following skills:

- Understand mineral reactivity processes in CO2 geological storage contexts
- Review thermodynamics and kinetics concepts
- Analyze case studies using Arxim and Geoxim software
- Interpret results from geochemical and reactive transport simulations

Pedagogical & technical resources

- Presentations
- Interactive discussions
- Case studies using software

Assessment of achievements

Trainees are assessed throughout the training through practical application phases and interactions with the trainer. A final on-the-spot evaluation may also be carried out at the end of the course using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives.

Prerequisites

Basic geology and reservoir engineering knowledge or fundamental knowledge in transport within geological réservoirs.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTAL CONCEPTS OF REACTIVE TRANSPORT — 1 day

General presentation of the Sleipner CO_2 storage case.
Thermodynamic basics.
Practical exercises (Arxim).

PHASE DIAGRAMS AND MINERAL STABILITY — 1 day

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Stability ranges.
Phase diagrams.

REACTION KINETICS AND 1D CASE — 1 day

Reaction kinetics, applications to CO2 geological storage.
Challenges of accounting for kinetics in geochemical processes.

INTRODUCTION TO 2D TRANSPORT — 1 day

Geoxim introduction. Sleipner case study.
Practical exercises.

ADVANCED ANALYSIS — 1 day

Advanced analysis and visualization of results (Floviz).
Reactive front mapping.
Conclusion.

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Training - Safety Engineering - Fundamentals - Module 1

SAFENG1-EN-P | Face-to-face only | 5 days

This course provides the knowledge necessary to assess and mitigate risks, and apply industry-required safety codes and practices when designing, constructing and operating Oil & Gas processing facilities

Level

Skilled

Public

Engineers, technicians and staff, not familiar with the concepts of safety engineering, involved in operating Oil & Gas field processing facilities or in designing Oil & Gas projects architecture

Objectives

Attendees will be able to implement the following skills:

- Identify HSE standards and describe hazard identification methods of safety engineering in Oil & Gas processing
- Interpret the contents of standard hazard studies
- Explain the safe design principles and to propose mitigation measures
- Define, predict and measure possible outcomes and effects

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF SAFETY ENGINEERING — 0.5 day

Safety engineering throughout the life of a project and during operations.
Safe design principles.
Risk assessment. Probabilistic and deterministic methods.
Scenario definition. Concept of barriers.

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“PRELIMINARY HAZARD ANALYSIS” - HAZID — 0.5 day

Objectives of preliminary hazard identification during conceptual/feasibility studies.
Hazards related to typical Oil & Gas process.
Methodology for carrying out a HAZID.
HAZID application.

“HAZARD & OPERABILITY” - HAZOP — 0.75 day

Introduction to HAZOP methodology. Node identification. Guidewords.
HAZOP register matrix.
HAZOP exercise.

MAJOR HAZARD ASSESSMENT — 0.75 day

Major Accident Hazard (MAH) scenarios.
Scenario representation. Bowtie diagrams.
Risk reduction process. Risk matrices and ALARP principle.
Safety critical elements.
Major accident hazards analysis. Tools Fault Tree Analysis (FTA) and Event Tree Analysis (ETA).

LAYERS OF PROTECTION — 0.5 day

Concept of Layer of Protection. Characteristics.
Introduction to Safety Instrumented Systems. Emergency shutdown system, blow-down system, introduction to HIPS systems.
Fundamentals of reliability. SIL level.

PLOT PLAN REVIEW — 0.5 day

Fundamentals of consequence analysis for MAH scenarios.
Safety engineering approach to plant layout.
Plant layout exercise.

PREVENTION OF HYDROCARBON IGNITION — 0.5 day

Hazardous area classifications methodology and examples. Electrical equipment and suitability with regard to hazardous area classification.
Safe disposal networks. Flares and vents

INTRODUCTION TO FIRE & GAS SYSTEM — 0.25 day

Fire and Flammable gas detection systems. Technologies and suitability.

PREVENTION OF FIRE ESCALATION — 0.5 day

Introduction to Fire Detection Systems.
Passive fire and blast protection.
Introduction to active firefighting systems. Main elements and applications.

ENGINEERING OF EMERGENCY ESCAPE & EVACUATION RESOURCES — 0.25 day

Alarm system. Types of alarm.
Introduction to evacuation and escape resources.

Sessions

Pau - From 11/23/2026 to 11/27/2026 — **4360 €/HT**

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Training - Safety Engineering - Advanced techniques - Module 2

SAFENG2-EN-P

Face-to-face only

5 days

This course provides the knowledge and tools for coordinating HSE studies, for the different stages of an onshore or offshore, Oil & Gas, grass-roots or major revamping project

Level

Skilled

Public

Safety engineers, HSE superintendents, other engineers and managers (environment, project, process, instrument and operations) involved in operating or designing and implementing major projects

Objectives

Attendees will be able to implement the following skills:

- Describe the probabilistic methods of safety engineering and typical safety systems design
- Design safety systems including firewater, fire and gas detection, and over-pressure relief
- Take part in risk assessment and project evaluation
- Contribute to a corporate, experience-based, safety culture

Pedagogical & technical resources

- Highly interactive training by industry specialist lecturer
- Numerous applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INHERENTLY SAFER PLANT DESIGN — 0.25 day

Possible options for the elimination of a hazard.
Provision or addition of control means.

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Limitation of inventories of hazardous products.

CONSEQUENCE ANALYSIS METHODOLOGY — 0.75 day

Examples of types of scenarios to be considered.
Consequence modeling e.g. blast overpressure, dispersion modeling...
Criteria for impact assessment.
Exercise.

QUANTITATIVE RISK ASSESSMENT (QRA) — 1 day

Methodology to be used.
Systematic QRA approach (step by step).
Assessment and improvement.
Case studies and application.

SAFETY INSTRUMENTED SYSTEMS (SIS) — 1 day

Examples of Safety Instrumented Systems and performance targets.
Typical architecture.
Safety Instrumented Function (SIF) and Safety Integrity Level (SIL).
Design of ESD systems, hierarchy of ESD and actions, causes and effects.

DESIGN OF FIRE & GAS (F&G) DETECTION SYSTEMS — 1 day

Selection of F&G detector types.
Positioning of F&G detectors.
Logic associated with the activation of the F&G detectors.

ACTIVE & PASSIVE FIRE PROTECTION — 0.5 day

Design of firewater network, calculations for firewater demand.
Fire protection using water, foam, dry chemicals and inert gas.
Firewater systems, pump types and selection guidance.
Practical exercise.

HUMAN FACTORS & HUMAN ERRORS — 0.5 day

Human factors in process control. Alarm systems.
Human error in process plants. Downgraded situations.
Emergency situations.

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Training - Safety Engineering - Project - Module 3

SAFENG3-EN-P | Face-to-face only | 5 days

This course provides the knowledge necessary to assess and mitigate risks involved in designing, constructing and operating Oil & Gas processing facilities

Level

Skilled

Public

Engineers, technicians and staff (environment, project, process, instrument and operations) involved in operating Oil & Gas field processing facilities or in designing Oil & Gas projects architecture

Objectives

Attendees will be able to implement the following skills:

- Apply HSE standards, process hazards analysis methods and key safety management rules
- Explain the contents of standard hazard studies
- Select safety systems including firewater, fire and gas detection
- Take part in risk assessment and project evaluation for offshore and onshore facilities

Pedagogical & technical resources

- Highly interactive and participative training method where a mini-project will be presented, so the different workshop activities will be applied to this project
- Workshop sessions with several exercises, applications, real case studies
- Brainstorming sessions in small groups, with reporting
- Plenary sessions to consolidate fundamental knowledge and discuss results of workshop sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including group presentations

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SAFETY ENGINEERING MINI-PROJECT FOR A SPECIFIC SURFACE PRODUCTION FACILITY

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Throughout the course, the participants will be guided in the development of safety engineering studies for a production facility. The various workshops performed throughout the week will thus enable the constitution of a safety dossier for a given production facility. Each workshop will comprise of a plenary training session, which will provide the theory required for the participants to then work on their case study. For this purpose, participants will be grouped in teams. Following each case study, debriefing sessions are organized, during which the results are presented by and discussed with the participants.

HAZARD IDENTIFICATION: HAZID/HAZOP — 1 day

Plenary session (0.25 day)

- HSE Fundamentals: definitions, hazard studies, risk assessment, environmental issues.
- Risk analysis methodology: definitions, vocabulary, deterministic and probabilistic methods, preliminary hazard analysis.

Workshop (0.5 day)

- HAZID exercise.
- Hazard and operability (HAZOP) application.

Plenary session (0.25 day)

- Workshop results, Day 1 debriefing, questions-answers.

MAJOR HAZARD ASSESSMENT - CONSEQUENCE ANALYSIS — 1 day

Plenary session (0.25 day)

- Major hazard assessment on process plants.
- Consequence analysis methodology.

Workshop (0.5 day)

- Major accident hazard representation. Bowtie diagram practice.
- Consequences analysis: dispersions, explosions (VCE, BLEVE), boil over, jet fire, etc. Criteria for impact assessment.

Plenary session (0.25 day)

- Workshop results, Day 2 debriefing, questions-answers.

PLANT LAYOUT - QRA — 1 day

Plenary session (0.25 day)

- Plot plan review: safety engineering approach to plant layout.

Workshop (0.5 day)

- Plant layout (safety optimization), plant layout exercise and case study.
- Quantitative Risk Assessment: systematic QRA approach (step by step). Assessment and improvement, applications.

Plenary session (0.25 day)

- Workshop results, Day 3 debriefing, questions-answers.

SAFETY INSTRUMENTED SYSTEMS (SIS) — 1 day

Plenary session (0.25 day)

- Introduction to Safety Instrumented Systems (SIS).
- Fire & Gas (F&G) detection system.
- Emergency shutdown cause and effects matrix.

Workshop (0.5 day)

- Determination of SIL level requirements.
- F&G systems. Case study for layout and equipment selection.

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- ESD causes and effects matrix development exercise.

Plenary session (0.25 day)

- Workshop results, Day 4 debriefing, questions-answers.

FIRE PROTECTION & EMERGENCY RESPONSE — 1 day

Plenary session (0.25 day)

- Passive fire protection.
- Active fire protection.
- Emergency escape, evacuation and rescue resources.

Workshop (0.5 day)

- Active fire protection systems. Case study for layout design and equipment selection.
- Emergency response. Historical incidents.

Plenary session (0.25 day)

- Workshop results, Day 5 debriefing, questions-answers.

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Training - Safety Engineering

SAFENGC-EN-P | Face-to-face only | 15 days

This course aims to achieve deepen knowledge to assess and mitigate risks, and apply industry-required safety codes and practices when designing, constructing and operating Oil & Gas processing facilities

Level

Skilled

Public

Engineers, technicians and staff, not familiar with the concepts of safety engineering, involved in operating Oil & Gas field processing facilities or in designing Oil & Gas projects architecture

Objectives

Attendees will be able to implement the following skills:

- Describe risk assessment methods of safety engineering in Oil & Gas processing
- Identify the main advantages and constraints of safety engineering studies
- Identify the necessary safety engineering studies to be carried out during a project
- Interpret the contents of standard hazard studies, explain the safe design principles and propose mitigation measures
- Define, predict and measure possible outcomes and effects

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions
- A mini project will be developed and presented during the last week as part of the IFP Training Certificate process

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including group presentations

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: FUNDAMENTALS — 5 days

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Fundamentals of safety engineering.
Preliminary hazard analysis. HAZID.
Hazard and operability. HAZOP.
Major hazard assessment.
Layer of protection.
Plot plan review.
Prevention of hydrocarbon ignition.
Prevention of fire escalation.
Engineering of emergency escape and evacuation resources.

MODULE 2: ADVANCED TECHNIQUES — 5 days

Inherently safer plant design.
Consequence analysis methodology.
Quantitative Risk Assessment (QRA).
Safety Instrumented Systems (SIS).
Design of fire and gas detection systems.
Active and passive fire protection.
Human factors and human errors.

MODULE 3: PROJECT — 5 days

Safety engineering mini-project for a specific surface production facility:

- Hazard identification: HAZID/HAZOP.
- Major hazard assessment. Consequence analysis.
- Plant layout. QRA.
- Safety Instrumented Systems (SIS).
- Fire protection and emergency response.

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Training - Sustainable Aviation Fuel - SAF

SAF-EN-P | Face-to-face only | 2 days

This training course deals with the different jet fuels that can replace fossil jet fuel with a view to reducing pollutant and CO2 emissions. It provides an overview of what can be considered in the choice of production schemes

Level
Expert

Public
Executives, engineers and technicians in the renewable industries, refining, trading in petroleum products or renewable fuels... concerned by the evolution of jet fuel quality, in relation to the technologies applied to aviation turbines

Objectives
Attendees will be able to implement the following skills:

- to know the certified SAF, their manufacturing and distribution ways
- understand the integration of SAF into conventional jet fuel production schemes

Pedagogical & technical resources
Interactive training with trainees

Assessment of achievements
Quiz

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FOSSIL-BASED JET FUEL — 0.5 day

Origine and composition of fossil-based jet fuel through the process flow diagram in a refinery.
Main characteristics necessary for its use.
Air emissions from jet fuel combustion.

SAF-SUSTAINABLE AVIATION FUELS — 1.25 days

Context, Regulations and issues, general review of the different production sectors, environmental assessment from well to wheel.
Certification – taxation.
Main production routes certified or in the process of certification of SAF: hydrotreated vegetable oils, synthetic biojets, biological routes and e-fuel.

INTEGRATION OF SAFS IN THE REFINING INDUSTRIES — 0.25 day

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Modifications and adaptations: processes, storage, logistics.
Segregation of products and/or certificates.
Sustainability and Traceability.

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Training - Introduction to Process Safety Engineering

SAFENRC-EN-P | Face-to-face only | 5 days

This course provides an overview of safety reviews in a project and highlights the main principles to design and maintain the prevention, mitigation and protection barriers

Level

Knowledge

Public

Managers, engineers, technicians in charge of the design, the modification, the maintenance or the operation of industrial facilities

Objectives

Attendees will be able to implement the following skills:

- Be instrumental in the safety reviews done during a project or plant modification
- Improve process safety practices and reinforce the integration of the human factor from the design stage
- Strengthen the integration of the human factor from the design stage

Pedagogical & technical resources

The pedagogy is active and builds on the experience of the participants and the knowledge of the site:

- several exercises and applications (50% case studies or tutorial exercises), with a "rolling case" on a typical processing unit
- safety impact of a simple modification
- identification of safety barriers with the impact of their maintenance on their effectiveness
- a number of visual aids: videos, learning from incidents (Texas City, Buncefield, Achinsk...)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

RISK IDENTIFICATION — 1.25 days

Risk identification and acceptability with respect to people, environment and assets - Hazard and risk - Residual risk - Risk assessment matrix.

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Review of hazardous phenomena: gas dispersion, toxic release, thermal radiation, overpressure blast.
Preliminary risk quantification: evaluation of risk consequences (grass root project or revamping) based on HAZID/HAZOP reviews.

INHERENT SAFETY DESIGN & LAYOUT OPTIMIZATION — 0.5 day

Layout optimization based on safety reviews: safety distances, fire zones, deluge zones.
Reducing hazardous inventories, leak control systems, disposal system (flare, diked area...) and drainage systems, equipment sealing.

TYPE OF SAFETY BARRIERS — 0.25 day

Safety barriers: technical, organizational, human; prevention, mitigation, protection, active, passive. Criteria of safety barriers' efficiency.

PREVENTION BARRIERS — 1.5 days

Pressure equipment and atmospheric storage tanks: selection of material of construction, corrosion, pressure resistance - Piping classes.
Overpressure and negative pressure protection: pressure safety valves, rupture discs: selection criteria, design, implementation, inspection.
Safety Instrumented Systems (SIS) and Safety Integrity Level (SIL) - Typical architecture of Safety Instrumented Systems: hierarchy, interaction with process control system and Fire & Gas system.
Flammability control: minimizing ignition sources, hazardous area classification, equipment selection and location in hazardous areas.

DETECTION, MITIGATION & PROTECTION SYSTEMS — 0.75 day

Fire and gas detection system: technology of sensors, selection and location - Cause and effect matrix, voting - Relationship with mitigation systems.
Passive fire and blast protection: description of material, location, monitoring and inspection - Identification of surface/elements to be protected.
Active firefighting systems: extinguishing agents (water, foam, dry chemicals, inert/inhibition gas).
Fixed systems with water or foam: elements of the fire main system (main ring, fire water pumps, consumers, water tank, foam solution), application rate.

DAY-TO-DAY INDUSTRIAL RISK MANAGEMENT — 0.75 day

Human factors: functioning of the human being - Examples of systems embedding human behavior or human error: equipment accessibility, plant ergonomics, graphic display design, alarm management...
Management Of Change (MOC): technical, organizational and human expertise (reliability of documentation, suitability/application of the procedures, corporate's specifications...).
Maintaining the efficiency of the barriers - Example of a risk management tool: the bow tie.

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Training - Developing a low Carbon Strategy: From Carbon Footprint Measurement to transition Plan

SBC-EN-P | Face-to-face only | 3 days

Since the Paris Agreement, countries have agreed on a global warming threshold that should not exceed 2°C above 1850 levels by 2100. This implies, first and foremost, reducing anthropogenic GHG emissions, which governments are translating into their own legislation. Companies must therefore transform and act to measure their carbon footprint and build a robust climate strategy

Level

Knowledge

Public

Anyone wishing to discover and/or deepen their knowledge of GHG emissions quantification and reporting methods (GHG Protocol, Bilan Carbone®, ISO 14064/69).
This course is aimed at: company and engineering office staff working as HSE or CSR coordinators, project managers & consultants on sustainability

Objectives

Attendees will be able to implement the following skills:

- Master the main principles of a carbon footprint assessment.
- Differentiate between the different available national & international standards for carrying out your company's carbon footprint (GHG Protocol, Bilan Carbone®, ISO 14064/69).
- Identify the key stages following the completion of a carbon footprint (emissions reduction target, action plan, integration into low-carbon strategy .... etc.).

Pedagogical & technical resources

- Quiz.
- Case studies.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic knowledge on climate change and MS Office Excel.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WHY TAKE THE DECARBONIZATION ROUTE — 0.5 day

Identify the causes and consequences of climate change.
Understand the nature of climate change.
Climate change and its impact on business.
Identify the challenges raised by the energy transition.

KEY STEPS IN A CARBON FOOTPRINT ASSESSMENT — 1 day

Identify regulatory requirements for carbon footprint.
Carbon accounting standards (GHG Protocol, Bilan Carbone®, ISO 14064/69).
Describe the objectives of a carbon footprint.
Identify the scope of the carbon footprint (organizational, operational and temporal).
Drawing up flow maps.
Data collection and processing.
Handling carbon footprint measurement units.
Interpreting the results of a simple carbon footprint case study.
List existing reporting formats for publishing carbon inventory.
Case study: Evaluating a company's GHG emissions according to carbon accounting standards.

HOW TO SET A GHG REDUCTION TARGETS — 0.5 day

Identify the steps that follow a carbon footprint (emission reduction target, action plan, contribution to carbon sequestration, etc.).
Define the notion of carbon neutrality within the SBTi framework (Science Based Target Initiative).
Setting a science-based GHG reduction targets (commitment timeframe and scope).
Examples of targets setting according to SBTi standards (Absolute Approach ACA and Sector Approach SDA).

HOW TO BUILD A LOW CARBON ROADMAP — 0.5 day

Diagnose the risks and opportunities of the ecological transition.
Diagnose physical risks.
Define a strategy and an ecological transition project.

SETTING A TRANSITION PLAN — 0.5 day

Identification of potential actions to implement the strategic plan.
Selection of the most relevant set of actions for implementation.
Identify the levers for actions within the company, depending on its structure and sector.
Monitoring and guiding the implementation of the action plan.
Case studies: Building a company's transition plan according to international standards.

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Training - Special Core Analysis

SCAL-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical understanding of methods, procedures and issues related to evaluation of special rock properties such as relative permeability and capillary pressure at laboratory and all considerations before their application in reservoir simulation

Level

Skilled

Public

Geoscientists, petrophysicists, reservoir engineers, petroleum engineers and other E&P professionals willing to deepen their knowledge in special core analysis

Objectives

Attendees will be able to implement the following skills:

- Discuss the business impact of Special Core Analysis (SCAL) measurements using state-of-the-art laboratory and data interpretation techniques
- Design a SCAL measurement program
- Assess the quality of SCAL reports
- Implement SCAL data into reservoir simulation studies

Pedagogical & technical resources

- Highly interactive course alternating theory, exercises and field cases
- Use of the SCAL (Special Core Analysis) license free simulator SCORES

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION — 0.25 day

Business value of SCAL, remaining vs. residual oil saturation, wettability.
Best practice: need for interpretation-by-simulation.
General overview of laboratory measurement techniques.

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STEADY-STATE TECHNIQUE 0.75 day

Basics: experimental set-up in the lab, physics of the experiment, horizontal vs. vertical, automation of data gathering.
Analytical interpretation: data consistency, design of experiments, choices for fractional flow.
Best practice: interpretation-by-simulation, hands-on exercises using the SCORES/DuMux simulator.

- Residual oil vs. remaining oil saturation, impact of imbibition capillary pressure, oil end-effect.
- Impact of drainage capillary pressure, water end-effect.

CORE PLUG PREPARATION & UNSTEADY-STATE TECHNIQUE 1 day

Core plug preparation:

- Plug selection, using quantitative X-ray CT images, cleaning.
- Establish initial water saturation:
- Mercury injection (MICP) for reservoir saturation height functions and pore size distribution.
- Recent developments in MICP showing important problems in MICP for low permeability rock when assessing transition zones.
- Ageing.

Unsteady-State (Welge) technique:

- Basics: experimental set-up in the lab, physics of the experiment, horizontal vs. vertical, automation of data gathering; analytical interpretation with exercises in Excel™.
- Analytical calculation of shock front saturation, JBN method.
- Corey parameter characterization.
- Best practice: interpretation-by-simulation, hands-on through exercises with the SCORES/DuMux simulator: effect of viscosity ratio, impact of capillary forces, capillary number and desaturation.

CENTRIFUGE TECHNIQUE & SCAL DATA QUALITY ASSESSMENT 1 day

Centrifuge technique:

- Basics: experimental set-up in the lab, physics of the experiment, drainage vs. imbibition hardware, automation of data gathering.
- Analytical interpretation with exercises in Excel™. Bond number:
- Hassler-Brunner analysis for multi-speed experiments.
- Hagoort analysis for single-speed experiments.
- Best practice: interpretation-by-simulation, hands-on through exercises with the SCORES/DuMux simulator:
- Effect of oil viscosity, characteristic time.
- Impact of water mobility in imbibition experiments.
- Impact of capillary forces.
- History matching multi- and single-speed experiments.

SCAL quality assessment:

- How to recognize bad data?
- Best practice: verifying data consistency.

Implement SCAL data into reservoir simulation studies:

- Rock-typing.
- Gridding for reservoir simulation.

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POROUS PLATE TECHNIQUE, SCAL FOR GAS FLOODING EXPERIMENTS, STRENGTHS & WEAKNESSES OF EACH SCAL TECHNIQUE — 1 day

Porous plate technique - Basics:

- Experimental set-up in the lab, physics of the experiment, capillary continuity, multiple plugs vs. single plug equipment.
- Automation of data gathering.
- Analytical interpretation with exercises in Excel™: recognizing equilibrium, characteristic time.
- Best practice: interpretation-by-simulation, hands-on through exercises with the SCORES/DuMux simulator.
- How to set-up simulations in the absence of data?
- Experimental design.
- Interpretation-by-simulation of capillary pressure and resistivity measurements.

SCAL for gas flooding experiments:

- Understand limitations of UnSteady-State and Steady-State techniques through exercises in Excel:
- Impact of shock front in drainage and imbibition mode in UnSteady-State experiments.
- Hagoort criterion for viscous fingering.
- 3-phase relative permeabilities, spreading condition, centrifuge experiments for GOGD.
- Best practice: interpretation-by-simulation, hands-on through exercises with the SCORES/DuMux simulator: impact of capillary pressure in flooding experiments.

Plenary discussion of strength and weaknesses of each SCAL measurement technique.
Understanding main characteristics of each technique facilitates designing a lean and fit-for-purpose SCAL measurement program.

SCAL FOR EOR & SCAL MASTER MEASUREMENT PROGRAM — 1 day

SCAL for EOR:

- Introduction into EOR techniques in the field.
- Understanding scope for EOR.

Issues and design of SCAL experiments for low salinity flooding, Microbial EOR, CO2 EOR, Thermal EOR, Chemical EOR, EOR in fractured reservoirs.
Plenary discussion on the design of a best practice master measurement program:

- At the end of this discussion, a comprehensive handout will be distributed that serves as a Master SCAL measurement program for future use in the office.

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Training - Process Diagrams (PFD-PID)

SCHEPRO-EN-P | **Face-to-face only** | **2 days**

This course provides practical keys to read and use process diagrams

Level
Knowledge

Public
Technical staff using process diagrams

Objectives
Attendees will be able to implement the following skills:
- Use the symbols of a PID legend
- Read process diagrams

Pedagogical & technical resources
- Use of a set of complex PIDs to understand process flow, instrumentation loops, equipment characteristics...
- PID review with checklist/HAZOP initiation

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BLOCK DIAGRAM & PROCESS FLOW DIAGRAM (PFD) — 0.5 day

Splitting a process in blocks. Elaborating a block diagram.
Use of a PFD, added value compared to the block diagram. Type of information included in a PFD.
Symbols used for each element.
Importance of Utility Flow Diagrams (UFD). Complementarity with process flow diagrams.

PIPING & INSTRUMENTATION DIAGRAM (PID) — 1 day

Purpose of PIDs: users from engineering phase to operation.
Process and utilities PIDs. Key elements indicated on PIDs. PID legend. Typical symbols.
Design and organization of a PID, level of detail. Notes, holds, comments.
Contents of a PID. Evolution according to design/operation phases.

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Documents associated with a PID.

P&ID REVIEWS — 0.5 day

Design reviews: focus on HSE and operability with HAZOP review.
Organization of the review, selection of attendees. Action plan. Validation. Reporting and follow-up process.

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IFP Training

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Training - Occupational Health and Safety

SECO1-EN-E | **E-Learning** | **1 hour**

This e-learning module take place within a development path regarding safety in plant operation. These modules are integrated into some of our Blended Learning courses but can also be followed independently

Level

Knowledge

Public

All industrial plant staff faced with products hazards

Objectives

Attendees will be able to implement the following skills:

- List the various potential hazards on an installation

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Complementary informations

For any information please contact us at the following address: contact@ifptraining.com

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

VOCABULARY & SAFETY INDICATORS

Hazard, risk and accidents: definitions and associated consequences.
Occupational accidents: figures and trends.

POTENTIAL HAZARDS IN FACILITIES

Occupational risk reduction: human, organizational, technical factors.
Human being: advantages, weakness and limits.

HAZARDOUS PRODUCTS CLASSIFICATION

SGH recommendation, CLP regulation: objective and field of application.
Hazards classification and linked definition.
Hazardous material characteristics: where can you found relevant information?

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This training course is offered under the **Alliance4Training** brand

Training - Flammability

SECO2-EN-E | **E-Learning** | **1 hour**

This e-learning module take place within a development path regarding safety in plant operation. These modules are integrated into some of our Blended Learning courses but can also be followed independently

Level
Knowledge

Public
All industrial plant staff faced with products hazards

Objectives
Attendees will be able to implement the following skills:

- Describe the mechanism of ignition, including potential sources of ignition and possible preventive measures

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Complementary informations
For any information please contact us at the following address: contact@ifptraining.com

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

COMBUSTION PHENOMENON

Combustion definition.
Elements necessary to achieve combustion.
Gaseous, liquid and solid combustible materials.
Oxidizers: oxygen in the air and strong oxidizers.

IGNITION SOURCES & CONSEQUENCES OF A COMBUSTION

Ignition sources: energy required level.
Ignition sources in industrial plant.
Possible consequences of a combustion.

PREVENTIVE MEASURES AGAINST PRODUCT HAZARDS CLASSIFICATION

Action on one of the three elements from the fire triangle.

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Explosimeter operating principles.
ATEX area: definition and precautions associated.

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Training - Occupational Health

SECO3-EN-E | **E-Learning** | **1 hour**

This e-learning module take place within a development path regarding safety in plant operation. These modules are integrated into some of our Blended Learning courses but can also be followed independently

Level
Knowledge

Public
All industrial plant staff faced with products hazards

Objectives
Attendees will be able to implement the following skills:

- Indicate the sources of information available to know the effect of a product on the human body

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Complementary informations
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Responsable
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Program

PRODUCTS TOXICITY

Poisoning: ingestion, metabolism and elimination.
Acute toxicity, chronic toxicity.
Threshold limit values.

SPECIFIC RISKS FROM MOST COMMON PRODUCTS USED IN PLANTS

Anoxia phenomenon.
CMR compounds: identification and prevention.
Some toxic materials features: H2S, carbon monoxide, ammonia.

CHEMICAL RISK PREVENTION

Chemical risk assessment.
Material safety datasheet understanding.

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Gas detection means and personal protective equipment.

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Training - Fluids Behavior

SECO4-EN-E | **E-Learning** | **1 hour**

This e-learning module take place within a development path regarding safety in plant operation. These modules are integrated into some of our Blended Learning courses but can also be followed independently

Level
Knowledge

Public
All industrial plant staff faced with products hazards

Objectives
Attendees will be able to implement the following skills:
- Explain the origins of pressure in a vessel depending on the nature of the fluid

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Complementary informations
For any information please contact us at the following address: contact@ifptraining.com

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRESSURE IN A VESSEL

Definition and reminder of physical units.
Pressure effect in a vessel full of, gaseous, liquid gas, or liquid.
Vaporizing pressure curve analysis.

HEAD ADDITION CONSEQUENCES

Case of a vessel full of, gaseous, liquid gas, or liquid.
Specific phenomena: BLEVE, slop-over, froth-over, boil-over.

HEAD REMOVAL CONSEQUENCES

Collapsing risks due to vacuum.
Freezing due to pressure drop.

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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - Safety in Plant Operation

SECOP-EN-P | **Face-to-face only** | **4 days**

This course provides trainees with a better understanding of product and equipment risks in order to ensure safe operation

Level

Knowledge

Public

Operating personnel (operators, panel operators, shift leaders, engineers) in refineries and petrochemical/chemical plants; any staff involved in operations (maintenance, SHE department)

Objectives

Attendees will be able to implement the following skills:

- Identify risks related to products used on a facility
- Identify the recommended preventive measures in view of the importance of the risk
- Order the different phases of the provision of a facility

Pedagogical & technical resources

- E-learning modules before the training to learn & refresh knowledge about risks
- Workshop: preparation of shutdown, decommissioning or/and commissioning, start-up procedure for a typical unit
- Case studies and analysis of incidents and accidents

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OPERATIONS & HSE — 0.25 day

Hazards and risks incurred. Consequences.
Risk management means: equipment, organizational and human aspects.

MAIN HAZARDS OF HYDROCARBON PROCESSING — 0.75 day

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Flammability: flame ignition and propagation principles. Types of combustibles, oxidizers and most common ignition sources in process facilities.
Toxicity: exposure limits. Specific hazards associated to H2S. Use of Safety Data Sheet (SDS).
Fluid behavior and related hazards: vessel pressure, consequences of temperature variation (thermal expansion, vaporization, vacuum, water hammer).

SAFETY IN PROCESS OPERATIONS — 2.75 day

Precautions and risks related to the use of utilities: inert gases, liquid water, steam, air, gas oil, fuel gas.
Safety related to blowdown and drainage toward: flare, slops, tanks, oily water...
Blinding (lockout/tag-out) procedures: conditions for installing blinds or spades.
Degassing-inerting: steam, nitrogen, water, vacuum...
Works permits: different types and use.
Entry into vessels. Atmosphere analysis: oxygen content, explosivity, toxicity.
Start-up: checks, accessibility and cleanliness, line up, nitrogen, water, steam or vacuum deaeration.
Tightness testing; commissioning and start-up.

HANDS-ON ACTIVITIES ON A TYPICAL UNIT DECOMMISSIONING

Case study, common thread of this training, used as a workshop with different groups of trainees in order to apply the different topics for decommissioning and commissioning & Start Up. Procedure writing with instructions for each step. Presentation to the group, sharing & discussions. Lessons learned.

IMPLEMENTATION OF THE PRINCIPLES & GUIDELINES

Preparation of shutdown, decommissioning or/and commissioning, start-up procedure for a typical unit. Common thread throughout the training, carried out sequentially during the session, in order to increase mutual understanding of decommissioning principles. Lessons learned.

HUMAN BEHAVIOR & SAFETY MANAGEMENT — 0.25 day

Human factors. Safety barriers, compliance with procedures, risk of routine.
Employees' involvement: commitment and responsibility.
Available tools to improve safety: procedures, risk assessment, safety meetings, accident investigation and reporting, audits, field observations, emergency drills.

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Training - Safety in Storage and Loading Operation

SECORSE-EN-P | **Face-to-face only** | **4 days**

This course provides a better understanding of product and equipment risks in order to increase safety behavior in storage and (un)loading activities.

Level

Knowledge

Public

Operating personnel (operators, panel operators, shift leaders, young engineers and terminal managers) in refineries and petrochemical/chemical plants and any staff involved in operations (maintenance, SHE department).

Objectives

Attendees will be able to implement the following skills:

- Identify the risks related to the products used on a facility and the various materials present on the storage units
- Identify possible preventive measures
- Order the different phases of the provision of a storage facility

Pedagogical & technical resources

- E-learning modules before the training to learn & refresh knowledge about risks
- Workshop: decommissioning and commissioning procedure for a typical unit selected based on trainees' origins (atmospheric tanks, under pressure storage, recovery unit, etc.)
- Case studies and analysis of incidents and accidents
- Agenda can be adapted to professional needs from the group of attendees

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

RODUCTS RISKS: PREVENTION & OPERATING PRECAUTIONS — 0.75 day

Case studies involving products risks analyzed in subgroups, in order to strengthen information from the e-

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learning. Share ideas with the entire group. Lessons learned.

EQUIPMENT RELATED RISKS - SAFETY DEVICES 1.25 days

Atmospheric and under pressure storage tanks: different kinds of construction, pressure and vacuum resistances, safety devices (vents, relief valves, hydraulic safety shut-off valves, positive safety valves, etc.).
Safety in tank storage operation. Typical incidents.
Loading/unloading tank trucks, railcars, tankers, etc.: loading stations layout (top or bottom fillings), safety devices & safety instrument systems, vapor recovery.

SAFETY IN STORAGE TANKS COMMISSIONING & DECOMMISSIONING OPERATIONS 2 days

General decommissioning approach with 5 different steps. “Zero energy” approach. Understanding & complying to procedures, risks from routine.
Draining-purging-blowdown: safety and environmental aspects.
Degassing-inerting-cleaning: HP cleaning and pumping liquid wastes, type of pumping according to products (volumetric pump, vacuum)
Lockout/Tag-out procedure (LOTO): type of LOTO according to different activities planned.
Works permits: endorsement and responsibilities.
Activities with specific risks: confined space entry. Gas test, ventilation, supervision.

HANDS-ON ACTIVITIES ON A TYPICAL STORAGE EQUIPMENT DECOMMISSIONING

Case study, common thread of this training, used as a workshop with different groups of trainees in order to apply the different topics. Procedure writing with instructions for each step. Presentation to the group, sharing & discussions. Lessons learned.

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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - Safety in Maintenance and Construction Works

SECTRA-EN-P | **Face-to-face only** | **4 days**

This course provides expert knowledge of risks related to construction and maintenance works and insight on how to promote safety practice and ensure safer work conditions and behavior

Level

Knowledge

Public

- Maintenance, operational and SHE staff who handle work permits and monitor contractors on operating plants
- It is also suited for contractors staff in charge of maintenance and construction works

Objectives

Attendees will be able to implement the following skills:

- List the risks associated with the different phases of work
- Identify appropriate means of prevention
- Clarify the responsibilities of each actor

Pedagogical & technical resources

- Detailed case studies based on actual accidents or incidents
- Sharing of experiences among participants

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OCCUPATIONAL HEALTH & SAFETY — 0.25 day

Hazard, risk, accident: definitions and differences.
Occupational hazards: related to products, operation and equipment, workplace, and human behavior.
Identification and classification of hazards during execution of maintenance and construction works.

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PRODUCT-RELATED HAZARDS & PRECAUTIONS 0.5 day

Product-related hazards in refineries, petrochemical and chemical plants: main properties (flammable, explosive, toxic, noxious, corrosive, asphyxiating, harmful for the environment), CMR specific case.
Toxicology: threshold limit values.
Flammability: explosive atmosphere (combustible products: gaseous, liquid and solid); oxidizers; ignition sources (flames, self-ignition temperature, sparks and static electricity, etc.).
Preventive measures and precautions: during normal conditions, before and during hot works, in the event of leaks.

WORK-RELATED HAZARDS 2.5 days

Decommissioning: risks related to equipment opening and line breaking, isolation procedure, blinding and spading work. Lockout tag-out procedure.
Material transportation equipment, manual and mechanical handling.
Lifting: recommendations regarding lifting equipment, worksite organization, and team composition.
Work in confined spaces: vessel opening, ventilation, gas testing, entry permit, risk variation during work execution.
Work at height: rules for installing and using scaffolding, MEWP (Mobile Elevating Work Platform), and harnesses.
Hot works: welding, cutting and heating, grinding.
High pressure cleaning: use of cleanup tank trucks. Specific risks linked to vacuum pumping.
Miscellaneous works: excavation works, abrasive blasting, painting.
Hazardous radiation: working with radioactive sources, X-ray work, specific risks.
Risks related to electrical work and devices.
Specific Personal Protective Equipment (PPE), recommended for each kind of works.

RISK MANAGEMENT & PREVENTION 0.75 day

Safety procedures: work permit types and validity; purposes, application, job safety analysis, precautions, constraints; commitment and responsibility of contractors, maintenance.
SHE and issuing operation department; permit endorsement.
Planning and monitoring safety of contracted works on site: coordination with contractors, co-activity and interface management; preparation of prevention plan and risk assessment.
Hazards resulting from unsafe acts and/or unsafe conditions: sources of hazards, task/risk analysis, managing contractors and subcontractors.
Management Of Change (MOC).

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Training - Industrial Safety Engineer

SECUIND-EN-P | Face-to-face only | 35 days

This course provides a deeper knowledge on how to master the main aspects of the industrial safety engineer position

Level

Skilled

Public

Engineers recently assigned to the HSE department in the following industries:

- Also available for experienced personnel designed to evolve in HSE function

Objectives

Attendees will be able to implement the following skills:

- List the tools needed for overall security management
- List the techniques needed for overall safety management
- Cite the strengths and weaknesses of the tools according to the context
- Clarify the limitations of the techniques needed for overall safety management
- Describe the roles of an industrial safety engineer

Pedagogical & technical resources

- Practical workshops on industrial equipment
- Site visit and studies based on industrial documents
- Real-life firefighting exercises
- Lecturing by industry experts
- Real incidents and accidents case studies
- Continuous validation, in order to obtain IFP Training Certificate

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WELCOME - PRESENTATION — 1 day

- Initial competency assessment.
- Role of HSE engineer within company. Mission and responsibilities of the safety engineer.

RISKS RELATED TO FLUIDS BEHAVIOR — 4 days

- Process mapping. Products knowledge.
- Gas compression and expansion. Liquid-vapor equilibrium. Energies at stake.
- Pressure in a vessel and consequences of heat addition or withdrawal. Risk assessment and operating precautions.

RISKS RELATED TO EQUIPMENT — 5 days

- Piping - Thermal equipment - Storage equipment - Pressure vessels.
- Transport - Loading/offloading units: tank trucks, tank rail cars, cargo ships.
- Rotating machinery: pumps, compressors, steam turbines, gas turbines...
- Instrumentation and process control.

INHERENTLY SAFER DESIGN — 5 days

- Phenomenology: phenomena of combustion: combustion of gaseous mixtures, liquids and solids. Effect of combustion. BLEVE/boil-over/backdraft/flash-over.
- Taking industrial risk into account.
- Layout based on risk analysis. Implementation of safety barriers: kinds and criteria of effectiveness.
- Prevention and care against fire and explosion hazards: control or removal of flammable mixtures, sources of ignition. Control of emission sources.
- Knowledge of pressure equipment and atmospheric storage - Protection against overpressure and depressions.
- Introduction to instrumented safety systems (SIS). Reliability level.

MITIGATION & PROTECTION MEANS — 5 days

- Gas detectors, fire detectors (smoke, flames, heat, etc.), liquid hydrocarbons detectors.
- Passive and active fire protection.
- Firefighting strategies: basic rules, means and methods of intervention, organization and management of rescue, strategy of intervention. Emergency response plans.

CONTROL OF RISKS RELATED TO WORK ON FACILITIES — 5 days

- Safety during commissioning and decommissioning operations.
- Lockout tag-out procedures.
- Safety in maintenance and construction works: specific risks and corresponding precautions. Permit to work. Integration of safety in preparation, implementation and work surveillance.

HSE RISK MANAGEMENT — 5 days

- Health, Safety and Environment Management System (HSE-MS): structure, implementation and administration of a HSE management system.
- Setting up an HSE culture.

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- Risk assessment methods: HAZID, HAZOP, Bow tie analysis, QRA.
- Prevention tools and means, crisis and intervention management. Human factors.
- Management of change - Improvement and maintenance of safety barriers HSE approach in projects.

ENVIRONMENT PROTECTION — 2 days

- Importance of environment protection for human being, for company. Awareness - Sustainable development.
- Environment impact assessment.
- Air, water and soil protection. Origin, nature, treatment and reduction of pollutions.
- Waste management: sorting and elimination routes.

INDUSTRIAL HYGIENE - HEALTH AT WORK — 2 days

- Professional risks: chemical risks, physical risks, toxicological risks.
- Prevention. Collective and personal protection equipment.
- Risk management: work station assessment, material safety data sheet, medical check-up.

FINAL ASSESSMENT - SESSION SYNTHESIS — 1 day

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Training - 3D Seismic Interpretation Workshop

SEIS3D-EN-P | Face-to-face only | 10 days

This course provides E&P professionals with a foundational understanding of 3D structural seismic interpretation, combining essential theory with extensive hands-on practice on PETREL©

Level

Skilled

Public

Technicians and engineers who wish to acquire or strengthen their knowledge of 3D structural seismic interpretation through extensive hands-on practice using professional software

Objectives

Attendees will be able to implement the following skills:

- Recognize main principles of seismic reflection and interpretation.
- Identify factors affecting seismic resolution.
- Understand the purpose of qualitative and quantitative interpretation methods.
- Practice seismic interpretation tasks in PETREL©.
- Generate horizons and fault deliverables for a geomodel

Pedagogical & technical resources

- Engaging sessions combining interactive presentations, practical exercises, and real-case document analysis.
- Second week is fully hands-on, with participants working directly on PETREL© - a leading seismic interpretation software used in the industry

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PETROLEUM GEOLOGY — 1 day

Tectonics, Sedimentary Basins.
Exercise on paper.

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OVERVIEW OF SEISMIC INTERPRETATION — 1.5 days

Structural interpretation.
Seismic stratigraphic interpretation.
Exercise on paper.

SEISMIC REFLECTION & WELL LOG CALIBRATION — 2 days

What is seismic reflection?
Seismic wave propagation.
Acquisition and Processing.
Seismic Polarity.
Seismic Resolution.
Exercise on paper.

FROM QUALITATIVE TO QUANTITATIVE INTERPRETATION — 1 day

Post-stack techniques.
Pre-stack techniques.
Seismic Attributes for Reservoir Interpretation.
Correlating Attributes with Seismic Stratigraphy.
Exercises on paper.

HANDS-ON SOFTWARE (PETREL©) — 4.5 days

Well Calibration.
Picking for Velocity Modeling Exploration.
Time-to-Depth Conversion.
Seismic Reservoir Characterization for Opportunities.

Sessions

Rueil-Malmaison - From 11/16/2026 to 11/27/2026 — **8490 €/HT**

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Training - Sedimentology and Sequence Stratigraphy

SEQSTRA-EN-P | Face-to-face only | 5 days

This course provides a practical, comprehensive understanding of new concepts and methods applied in stratigraphy, sedimentology and sequence stratigraphy analysis

Level

Knowledge

Public

Geologists, geophysicists working in multidisciplinary-team dedicated to exploration

Objectives

Attendees will be able to implement the following skills:

- Review fundamentals of main depositional environments
- Understand and apply sequence stratigraphy concepts and methods
- Identify sequences on seismic lines, and interpret core and log data with regard to stratigraphy

Pedagogical & technical resources

Lectures, exercises, hands-on sessions on real case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

STRATIGRAPHY - SEDIMENTOLOGY - DEPOSITIONAL ENVIRONMENTS — 1 day

Review of basic concepts in stratigraphy and sedimentology.
Alluvial, fluvial, deltaic, shallow and deep marine facies models.
Facies classification and related petrophysical characteristics.

SEISMIC SEQUENCE STRATIGRAPHY AT BASIN SCALE — 2.5 days

Historical concept of depositional sequences and system tracts.
Interpretation methodology both for clastics and carbonate facies.
Prediction of potential source rocks & reservoirs location.
Application to seismic interpretation.

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State-of-art overview of sequence stratigraphy.

HIGH-RESOLUTION SEQUENCE STRATIGRAPHY AT RESERVOIR SCALE — 1 day

Identification of genetic sequences.
Correlation by stacking patterns analysis.
Interpretation: exercises based on outcrop analogues and field studies.

OVERVIEW OF STRATIGRAPHIC MODELING — 0.5 day

Interactive demo on Dionisos™ modeling software.

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Training - Oil and Gas Process Simulation

SIMUL-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge of all field treatments, and develops practical skills in simulation of Oil & Gas treatment processes using the software HYSYS™ and PRO/II™

Level

Knowledge

Public

Process design engineers involved in conceptual design, basic or detailed engineering of Oil & Gas field treatment processes

Objectives

Attendees will be able to implement the following skills:

- Understand Oil & Gas processing operations: flash separation, compression, expansion, heating or cooling, mixing, pumping, etc.
- Grasp common Oil & Gas processing schemes and operating parameters
- Build a Process Flow Diagram (PFD) and optimize existing processing schemes
- Simulate an industrial unit at different operating stages
- Extract thermodynamics data from the simulation software database (phase envelope, critical point parameters, hydrate formation risk area, different physical properties...)

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Several simulation case studies, addressing most of Oil & Gas field treatments
- Extensive practice of PRO/II™ and HYSYS™ simulation software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SOFTWARE PRESENTATION — **0.25 day**

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Presentation of the different pieces of equipment: pumps, compressors, heat exchangers, turbines, turbo expanders, separators, valves, pipes.
Choice of the thermodynamic model: PR, SRK...
Definition of components, pseudo-components, heavy cuts.

SIMULATION OF A CRUDE OIL FIELD TREATMENT UNIT — 1 day

Main field treatments for crude oils: stabilization, sweetening, desalting and dehydration, associated gas compression and treatment.
Study of an offshore crude oil field treatment unit, based on Multiple Stage Separation (MSS).
Influence of the number of separators on the quality (API°, RVP...) and quantity of stabilized oil.
Optimization of the operating parameters: pressures and temperatures of separators, suction and discharge condition of compressors, pumping needs for export by pipe.
Identification and adjustment of the controlling parameters.

SIMULATION OF A NATURAL GAS FIELD TREATMENT UNIT — 1 day

Main field treatments for natural gases: dehydration, sweetening, LNG extraction/recovery, compression and export...
Study of an offshore natural gas dehydration, liquids extraction and compression unit.
Optimization of the operating parameters: primary separator operating conditions, dehydration parameters, cooling temperature for a sufficient liquid extraction, compression needs upstream the export pipe.
Identification and adjustment of the controlling parameters.
Analysis of hydrate formation risks.

SIMULATION OF A GAS DEHYDRATION UNIT BY PHYSICAL ABSORPTION (TEG) — 0.75 day

Simulation of the glycol loop: contactor, flash separator, regenerator (still), circulation pumps, glycol/glycol exchanger.
Adjustment of controlling parameters: dry gas residual moisture content versus purity of lean TEG, moisture flow to be removed versus TEG circulation flow.

SIMULATION OF A NATURAL GAS LIQUIDS (NGL) EXTRACTION/RECOVERY UNIT — 0.75 day

Progressive build up of the PFD of a Natural Gas Liquids (NGL) extraction unit.
Three processes are studied:

- External refrigeration loop (cryogenic loop).
- Joule Thomson expansion valve.
- Turbo Expander.

Illustration of the results on phase envelope diagram.

SIMULATION OF A PROPANE CRYOGENIC LOOP — 0.75 day

Study of a simple loop.
Improvement of loop performances by addition of an intermediate expansion.
Use of propane enthalpy diagram to validate the software results.
Influence of propane purity and consequences of air ingress.

SIMULATION OF NATURAL GAS LIQUID FRACTIONATION UNIT - DISTILLATION PROCESS — 0.5 day

Principle of separation by distillation process and main operating parameters.
Simulation of a LNG fractionation unit using distillation columns.
Characteristics and operating conditions of the main equipment. Specific constraints.

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Training - Design and Operation of a Safety Instrumented System (SIS)

SIS-EN-P | Face-to-face only | 2 days

Understand how a risk can be reduced by an instrumented safety barrier

Level
Skilled

Public
Engineers and technical staff involved in design of SIS

Objectives
Attendees will be able to implement the following skills:

- Determine the Safety Integrity Level (SIL) of a simple system
- List the main elements of the IEC61511 standard in the context of the design of SIS to better justify its relevance of implementation

Pedagogical & technical resources

- Step by step case study
- Study of SIS on mini processes test benches

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SIS & SAFETY BARRIERS — 0.5 day

Different safety instrumented systems: PSS, ESD, F&G, HIPS, ESP.
Links between the different SIS - Global architecture.
Control loop: basic knowledge; elements constituting a SIS.

SIS & INDUSTRIAL RISK CONTROL — 0.5 day

Use of safety reviews (HAZOP & LOPA & HAZOP) to determine the need for a Safety Instrumented Function (SIF).
Concept of independent protective layers.

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Use of a risk matrix to determine the level of SIL required for each RIS.

SIS SPECIFICATION — 1 day

Role of functional analysis.
FIS allocation, cause and effect matrix, redundancy and common mode.
Typical design.
Simple SIL calculations. Analysis of supplier documentation.
SIL level and frequency of testing.

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Training - Social Risk Management

SOCIAL-EN-P | Face-to-face only | 5 days

This course aims to identify and understand social issues related to Oil & Gas activities

Level

Knowledge

Public

Managers, advisors, engineers, and operations staff involved in oversight or management of operational, environmental and social issues throughout the lifetime of an upstream project

Objectives

Attendees will be able to implement the following skills:

- Identify and understand what constitutes a social risk (non-technical risk), an impact assessment and management
- Understand key concepts related to SIA and Social Impact Management Plans (SIMPs)
- Understand social management methodologies and their appropriate uses
- Design and implement of a stakeholder engagement strategy and plan
- Understand the main components of a Social Impact Management Plan (RAP, local content, etc.), including design and implementation

Pedagogical & technical resources

The training will have an interactive format providing room for practice and discussion. It will involve multimedia presentations, case studies, quizzes and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SOCIAL ISSUES RELATED TO OIL & GAS ACTIVITIES: RISKS, STAKES & STRATEGIES — 1 day

Risk of overlooking non-technical risks.
How to spot non-technical risks?

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How to identify and understand the underlying mechanisms?
How to manage social risks?
Oil & Gas industry reaction to underlying mechanisms.
Why and how should they be managed as a risk and an opportunity?
Key risks areas for Oil & Gas industry and developed standards: transparency and corruption, business and human rights, operations in areas of conflict, etc.

STAKEHOLDER ENGAGEMENT — 1 day

Social License to Operate (SLO).
How to build this SLO?
What is the Free Prior & Informed Consent (FPIC) principle?
Stakeholders-business interactions analysis.
How to do a stakeholder analysis and mapping?
How to design and implement a stakeholder engagement plan?
How to design, implement and monitor a grievance mechanism?
What are the do's and don'ts in stakeholder engagement?

PARTICIPATIVE SOCIAL IMPACT ASSESSMENT AS A RISK MANAGEMENT TOOL — 1 day

Conceptual framework and techniques used for Social Impact Assessment.
International standards.
Definition of a social impact.
Links between environmental and social impacts.
Predict, analyze and assess the likely social impacts pathways and evaluate their significance.
Develop a mitigation strategy for negative impacts and an enhancement strategy for the project-related opportunities.
How to monitor social impacts?
How to assess a SIA quality?
How to achieve the full potential of a SIA?

SOCIAL IMPACT MANAGEMENT PLANS & MONITORING: TOOLS & PROCESSES — 0.5 day

Social Impact Management Plans (SIMP).
The main components of a SIMP.
How can a SIMP be operational?
What are the organizational and institutional arrangements that need to be developed?
The role for the project's stakeholders in a SIMP?
Implementation and results monitoring and reporting.

SOCIAL IMPACT MANAGEMENT PLANS & MONITORING: FOCUS ON SPECIAL TOPICS & ISSUES — 1 day

Depending on the audience's needs and expectations, a focus can be put on specific social issues and how to manage them through specific social impact management plans: Resettlement Action Plan (RAP), Community Development Plan and Social investments, local content, etc.

CASE STUDY: SOCIAL SCREENING OF AN OIL & GAS PROJECT — 0.5 day

Through a work in group, the participants will do a stakeholder mapping, a high level impact assessment with the use of a mind mapping and an identification of potential impacts and mitigation strategies.

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Training - Subsea Pipelines

SPIPE-EN-P | Face-to-face only | 4 days

This course provides an in-depth technical knowledge of Oil & Gas subsea pipelines

Level

Skilled

Public

Engineers and technicians involved in the design, construction or operation of Oil & Gas subsea pipelines and risers

Objectives

Attendees will be able to implement the following skills:

- Understand the fundamental concepts for designing subsea pipelines
- Comprehend the construction methods and laying techniques, including subsea tie-in and shore approach
- Manage pipeline integrity, inspection and repairs

Pedagogical & technical resources

- Lectures carry numerous examples from ongoing projects
- Trainers are specialized engineers, currently involved in deep-offshore projects

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

In order to be able to follow this training, trainees are asked to fulfill at least one of the criteria below:
• either a proven experience in the design or the conception of pipelines of at least 1 year,
• or to be evolving towards a conception position or subsea pipeline design.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PIPELINE OPERATION: INTRODUCTION & MAIN CONSTRAINTS — 0.5 day

Definitions. Architecture of Oil & Gas production facilities.
Pipeline concepts.
Riser concepts.
Fabrication of carbon steel line pipe.
Constraints associated to subsea environment.
Flow regimes and instabilities.

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Maintaining the flow in pipelines: management of deposits.
Preservation during shutdown, restart.
Production monitoring and control from surface.
Impact of operational constraints on architecture and design.

DESIGN OF RIGID PIPELINES & RISERS — 0.5 day

Overview of pipeline design phases.
Survey techniques and route selection.
Thermal performance design.
Mechanical design.
Internal & external corrosion.
Materials.
Stability.
Spans.
Expansion and buckling.
Risers design specificities.
Limit state design.

FLEXIBLE PIPELINES DESIGN — 0.25 day

Specificities of flexible pipeline design.

OFFSHORE PIPELINE CONSTRUCTION — 0.5 day

Pipe lay methods (S, J, reel, tow).
Initiation/abandonment, installation of in-line structures.
Pipe lay vessels & equipment.
Welding and NDT.
Comparison of installation methods.

SHORE APPROACH CONSTRUCTION — 0.25 day

Shore approach construction and horizontal drilling.

TRENCHING & PROTECTION — 0.25 day

Requirements for pipeline protection.
Soil classification.
Overview of protection methods.

SUBSEA TIE-IN METHODS — 0.25 day

Conventional tie-ins including hyperbaric welding.
Deep-water tie-ins.
Thermal insulation of tie-ins.

PRECOMMISSIONING & PIGGING — 0.25 day

Introduction to pipeline pigging.
Pipeline precommissioning.
Operational pigging.
Intelligent pigging.

PIPELINE INTEGRITY — 0.75 day

Pipeline failures.
Management of integrity.
Inspection and maintenance.
Assessment of pipelines with defects. Requalification.
Repair.

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WORKSHOP **0.5 day**

Worked example covering the main topics of the training.

Sessions

Rueil-Malmaison - From 09/21/2026 to 09/24/2026 **3270 €/HT**

Rueil-Malmaison - From 09/20/2027 to 09/23/2027 **3350 €/HT**

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Training - Subsea Production Systems (SPS)

SPS-EN-P | Face-to-face only | 5 days

This course provides an in-depth technical knowledge of Oil & Gas subsea production systems

Level

Skilled

Public

Engineers and technicians involved in the design, construction or operation of Oil & Gas subsea production systems

Objectives

Attendees will be able to implement the following skills:

- Select the technology with the right criteria for the different equipment used for subsea production systems
- Select through typical subsea architecture and in particular in deep offshore
- Check installation techniques (with ROV, etc.)
- Deal with the main problems of flow assurance and prevention techniques

Pedagogical & technical resources

- Numerous examples from ongoing projects
- Trainers are specialized engineers, presently involved in deep-offshore projects

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

In order to be able to follow this training, trainees are asked to fulfill at least one of the criteria below:
• either have proven experience of deep offshore projects of at least 1 year,
• or to be in evolution towards a position related to deep offshore projects.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SUBSEA COMPONENTS & FIELD ARCHITECTURE — 1.5 days

Typical field architectures: loop, single line, hybrid loop, separation...
Surface production and storage technologies: FPSO, TLP...
Subsea production systems: XT, jumper, manifold, production lines, risers, umbilicals.
Umbilical networks: electrical, hydraulic, chemicals...

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Flowlines, risers and export systems.
Examples of offshore developments.
Pipeline and riser concept.
Materials (steel, corrosion resistant alloys, anti-corrosion coatings, thermal insulation...).
Pipeline installation.
New technologies under development (subsea separation, subsea processing, subsea pumping, subsea compression, heating, surface support...).

SUBSEA CONSTRUCTION & INTERVENTION — 1.5 days

Construction and multi-purpose support vessels.
Surface and subsea positioning.
ROV/diving operations.
Description of main subsea interventions methods.

INSPECTION, MAINTENANCE & REPAIR — 1.5 days

Anomalies: physical/structural integrity issues; functional non-conformities integrity issues.
External and internal inspection, monitoring.
Maintenance: subsea interventions; operational pigging.
Clamps and spool repairs.
Constraints specific to deep-water offshore production.
Environmental constraints (temperature, sea, seabed, access...).
Flow assurance issues: pressure, temperature, hydrates.

OPERATION FROM PRODUCTION PLATFORMS — 0.5 day

General description (subsea control devices, valve actuation process...).
Description of typical operations.
Description of specific operations.

Sessions

Rueil-Malmaison -	From 09/14/2026 to 09/18/2026	**4360 €/HT**
Rueil-Malmaison -	From 09/13/2027 to 09/17/2027	**4460 €/HT**

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Training - Seismic reservoir characterization

SRC-EN-D | Distance only | 5 days

This course provides a practical introduction to workflow and methodology of seismic reservoir characterization

Level
Knowledge

Public
E&P professionals with previous experience in geosciences

Objectives
Attendees will be able to implement the following skills:

- Assess the main methodology applied during seismic reservoir characterization
- Describe main concepts of seismic inversion
- Analyze and apply main concepts of seismic lithofacies classification

Pedagogical & technical resources
Interactive lectures and hands-on exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SEISMIC PRECONDITIONING — 0.5 day

SEISMIC FOR RESERVOIR ANALYSIS — 1.5 days

Seismic amplitude analysis, Direct Hydrocarbon Indicators (DHI), seismic attribute analysis.
HR - HQ - HD - Broadband seismic, 4D Seismic.
Multi-component seismic, P waves versus S waves.
AVO-AVA processing and analysis.
Seismic inversion.

ATTRIBUTES FOR STRUCTURAL ANALYSIS — 1.5 days

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Amplitude.
Dip.
Similarity.
3D seismic curvature ;
Fracture density.

ATTRIBUTES FOR GEOMODELING 1.5 days

Seismic facies, supervised, non-supervised.
Porosity.

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Training - Artificial lift: Sucker Rod Pump

SRPP-EN-D | Distance only | 5 days

This course provides a comprehensive, practical knowledge of rod pumping concepts, design, operations and potential problems

Level
Knowledge

Public
E&P professionals involved in operating wells using sucker rod pumping

Objectives
Attendees will be able to implement the following skills:

- This course provides a comprehensive, practical knowledge of rod pumping concepts, design, operations and potential
- problems

Pedagogical & technical resources
Attendees will be able to implement the following skills:

- Identify need for artificial lift
- Select the most-suited pumping method
- Design SRP pumps
- Analyze operating conditions
- Improve performance and manage equipment lifetime

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
Basics in well performance and completion, production engineering and/or artificial lift systems

Complementary informations
Kindly refer to the following complementary course which might be of interest: "Artificial Lift: Gas Lift"

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WHY ARTIFICIAL LIFT? — 0.75 day

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Main parameters relative to reservoir and well performance curve: inflow and outflow.
Need for artificial lift.

SUCKER ROD PUMPING — 2 days

Principle, field of application, crucial parameters.
Main specific equipment: surface Pumping Units (PU), downhole pumps, rodstring, Separator selection & design.
Operating procedures and troubleshooting.
Pump selection & design.
Rodstring design & calculation.
Surface unit selection.

MEASURMENT EQUIPMENT – DYNAMETER & ECOMETER — 1 day

Principle & Procedures.
Introduction to Total Well Management software.
Interpretation of graphs.

PROSPER SOFTWARE — 1 day

Introduction to PROSPER software.
Desing SRP pump using PROSPER.
Troubleshooting.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Artificial lift: Sucker Rod Pump

SRPP-EN-P | Face-to-face only | 5 days

This course provides a comprehensive, practical knowledge of rod pumping concepts, design, operations and potential problems

Level
Knowledge

Public
E&P professionals involved in operating wells using sucker rod pumping

Objectives
Attendees will be able to implement the following skills:

- This course provides a comprehensive, practical knowledge of rod pumping concepts, design, operations and potential
- problems

Pedagogical & technical resources
Attendees will be able to implement the following skills:

- Identify need for artificial lift
- Select the most-suited pumping method
- Design SRP pumps
- Analyze operating conditions
- Improve performance and manage equipment lifetime

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
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Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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Principle, field of application, crucial parameters.
Main specific equipment: surface Pumping Units (PU), downhole pumps, rodstring, Separator selection & design.
Operating procedures and troubleshooting.
Pump selection & design.
Rodstring design & calculation.
Surface unit selection.

MEASURMENT EQUIPMENT – DYNAMETER & ECOMETER — 1 day

Principle & Procedures.
Introduction to Total Well Management software.
Interpretation of graphs.

PROSPER SOFTWARE — 1 day

Introduction to PROSPER software.
Desing SRP pump using PROSPER.
Troubleshooting.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Subsea Well intervention

SSWINT-EN-D | Distance only | 5 days

This course provides the knowledge and skills required to choose and supervise subsea well intervention

Level

Skilled

Public

Drilling or production engineers, supervisors or personnel involved in subsea completion, well intervention and workover

Objectives

Attendees will be able to implement the following skills:

- assess which equipment is required in a subsea well intervention
- design the corresponding well intervention procedures
- work on complex completion issues with specialists
- Integrate the safe practices in well intervention & workover
- define a well killing program (pumping diagram)

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations
- Parts of the session customizable to a virtual remote classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL-COMPLETION EQUIPMENT — 1.75 days

General overview: specifications related to subsea operations.
Subsea Trees HXT & VXT (components, design).
Subsea wellhead systems & tubing hanger.

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Completion equipment: Functions to be carried out and corresponding equipment.
Surface controlled Subsurface safety valve.
Intervention assistance: ROV, Diver.

SUBSEA INTERVENTION LUBRICATOR (SIL) — 1 day

Subsea pressure control equipment (Subsea Completion and Workover Risers).
SIL Operations.
Subsea Tree Interface (SIL/WCP).
Barrier principals (SIL).
Shut-in SIL.

SUBSEA OPEN WATER C/WOR OPERATIONS — 1 day

Subsea pressure control equipment (C/WOR).
C/WOR operations.
Subsea tree interface (C/WOR/LRP).
Barrier principals (C/WOR).
Shut-in C/WOR.

SUBSEA LANDING STRING/SUBSEA TEST TREE (SSTT) — 1 day

Subsea pressure control equipment (SSTT).
SSTT operations.
Subsea tree interface (SSTT/BOP).
Barrier principals (SSTT).
Shut-in (SSTT).

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Classe virtuelle - From 10/26/2026 to 10/30/2026 — **4320 €/HT**

Classe virtuelle - From 10/25/2027 to 10/29/2027 — **4420 €/HT**

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Training - Subsea Well intervention

SSWINT-EN-P | Face-to-face only | 5 days

This course provides the knowledge and skills required to choose and supervise subsea well intervention

Level

Skilled

Public

Drilling or production engineers, supervisors or personnel involved in subsea completion, well intervention and workover

Objectives

Attendees will be able to implement the following skills:

- assess which equipment is required in a subsea well intervention
- design the corresponding well intervention procedures
- work on complex completion issues with specialists
- Integrate the safe practices in well intervention & workover
- define a well killing program (pumping diagram)

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations
- Parts of the session customizable to a virtual remote classroom

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL-COMPLETION EQUIPMENT — 1.75 days

General overview: specifications related to subsea operations.
Subsea Trees HXT & VXT (components, design).
Subsea wellhead systems & tubing hanger.

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Completion equipment: Functions to be carried out and corresponding equipment.
Surface controlled Subsurface safety valve.
Intervention assistance: ROV, Diver.

SUBSEA INTERVENTION LUBRICATOR (SIL) — 1 day

Subsea pressure control equipment (Subsea Completion and Workover Risers).
SIL Operations.
Subsea Tree Interface (SIL/WCP).
Barrier principals (SIL).
Shut-in SIL.

SUBSEA OPEN WATER C/WOR OPERATIONS — 1 day

Subsea pressure control equipment (C/WOR).
C/WOR operations.
Subsea tree interface (C/WOR/LRP).
Barrier principals (C/WOR).
Shut-in C/WOR.

SUBSEA LANDING STRING/SUBSEA TEST TREE (SSTT) — 1 day

Subsea pressure control equipment (SSTT).
SSTT operations.
Subsea tree interface (SSTT/BOP).
Barrier principals (SSTT).
Shut-in (SSTT).

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 06/14/2027 to 06/18/2027 — **4420 €/HT**

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Training - Stripping

STRIP-EN-P | Face-to-face only | 3 days

This course provides the practical knowledge and skills required for stripping operations

Level
Skilled

Public
Drilling and completion engineers, supervisors, and experienced tool pushers

Objectives
Attendees will be able to implement the following skills:

- understand the stripping theory & principle
- know the additional equipment required for stripping
- carry out stripping operations in real conditions through annular preventer alone or rams to rams

Pedagogical & technical resources
Exercises on a simulator, to ensure a level of quality in a safe, stress-free environment. The Simulator, with real scale and high graphic definition, helps to stimulate the trainees through multiple scenarios

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

REMINDERS ON WELL CONTROL — 0.5 day

Causes, signs of a kick.
Procedures in case of a sign of a kick.
Well shut-in procedures.
Control methods: driller's method, wait and weight method.
Reminders on the equipment: BOP, closing unit, choke manifold, tests of equipment.
Equipment.

STRIPPING: THEORY — 0.5 day

Principle of the volumetric method, of the lubricating method.

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Application of the volumetric method to a general case: change in annular capacity, deviated well, drill collar safety.
Stripping principle.
Additional equipment required for a stripping job.

STRIPPING: PRACTICAL ON SIMULATOR — 2 days

Stripping through the annular preventer while running in on simulator.
How teams are organized on the rig site to carry out the job.
Stripping through ram BOP while running in on simulator.
Stripping procedure when pulling out of hole.

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Training - Structural Geology, Basin Development and Associated Traps

STRUCT-EN-P | Face-to-face only | 5 days

This course provides an in-depth knowledge of key elements which characterize the structural style of a sedimentary basin

Level

Awareness

Public

Petroleum exploration geoscientists, multidisciplinary team managers

Objectives

Attendees will be able to implement the following skills:

- Get familiar with both brittle and ductile deformations identification and analysis, in various types of sedimentary basins, at different scales and under different stress regimes: at lithosphere scale: plate tectonics and basin formation (rifts, passive margins, active margins and thrust belts); at basin scale: subsidence and inversion, structural traps (tilted blocks, horsts, shale and salt domes, folds), at field and reservoir scales: behavior of faults (seal or drain), fracturing, cap rock integrity...
- Be able to identify the specific structural style of a petroleum area, on outcrop pictures and on seismic profiles
- Be able to grasp issues linked to tectonic evolution versus petroleum system evolution (in different structural contexts)

Pedagogical & technical resources

Interactive course: lectures illustrated by practical exercises and personal work

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PLATE TECTONICS & STRUCTURAL STYLES — 1.5 days

Earth structure, global dynamics and time scales.

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Structure of continental and oceanic lithospheres: thermicity, rheology, stress and strain.
Fundamentals of structural analysis:

- Extensional regimes: geodynamics and architecture of related basins (rift basins, passive margins).
- Compressional regimes: geodynamics and architecture of related basins (foreland basins, active margins, thrust belts).
- Intra-plate basins and tectonic inversion.

EXTENSIONAL & COMPRESSIONAL DEFORMATIONS - STRUCTURAL TRAPS — 1.5 days

Structural traps in extensional context.
Structural traps in compressional context.
Wrench faulting and related traps.
Salt tectonics and related traps.
Relationship between tectonic and sedimentary processes.
Case study: the Arabian plate and margins, relations with petroleum systems.

EXPLORATION & DEVELOPMENT PROBLEMS ASSOCIATED WITH STRUCTURAL STYLES — 1.5 days

Folding mechanisms and styles, impact on fractures distribution.
Conductive and sealing faults.
Migration pathways and petroleum systems timing.
Seal efficiency and time of residence of hydrocarbons in structural traps.

SUMMARY, SYNTHESIS & WRAP-UP — 0.5 day

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Training - Stuck Pipe Prevention

STUCKP-EN-P | Face-to-face only | 5 days

The aim of this training is to increase employee awareness of the impact and negative effects of a stuck pipe incident and to provide the knowledge necessary for good prevention but also to have the skills to intervene, supervise and properly plan stuck pipe operations in a well

Level

Skilled

Public

Personnel involved in drilling or workover operations: engineers, supervisors, driller, assistant driller and operators involved in the execution, supervision or planning of operations on water, geothermal or oil/gas wells

Objectives

Attendees will be able to implement the following skills:

- understand all the consequences of a stuck pipe incident
- implement the preventive measures
- recognize and analyze warning signs of a potential stuck pipe incident
- take the correct actions according to the stuck pipe situation
- perform the necessary calculations in case of stuck pipe

Pedagogical & technical resources

- Course material (PPT, video)
- Individual and group exercises
- Instructor with a valuable experience in drilling operations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CONSEQUENCES OF STUCK PIPE INCIDENT — 0.5 day

Impacts.

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Statistics.
Causes.
Basic rules.

STUCK PIPE MECHANISMS — 1.5 days

Differential sticking.
Solids induced pack off.
Mechanical and wellbore geometry.

DRILL STRING, MUD & HOLE CLEANING — 1 day

Characteristics and limits of the drill string.
Margin of over-pull.
Roles and characteristics of the drilling mud.
Solids control equipment.
Hole cleaning.

METHODS TO FREE THE DRILL STRING — 0.75 day

First actions for the driller.
Use of drilling jars.
Reduction of the differential pressure.
Use of lubricant pills.

PREVENTIVE MEASURES — 0.25 day

Listen to the hole.
Good drilling practices while drilling and tripping.
Teamwork and monitoring.

FISHING EQUIPMENT — 0.5 day

Description, function and correct use of fishing equipment.

HISTORY CASES — 0.25 day

Identify stuck pipe mechanisms and analyze the causes.

FINAL TEST — 0.25 day

Sessions

Pau - From 10/05/2026 to 10/09/2026	**4320 €/HT**
Pau - From 06/21/2027 to 06/25/2027	**4420 €/HT**
Pau - From 10/04/2027 to 10/08/2027	**4420 €/HT**

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Training - Subsurface Geology for Operation Geologists and Well Site Geologists - IFP Training Certificate

SUBGEOL-EN-D | Distance only | 6 hours

The purpose of this IFP Training Certificate, is to make sure that the operation geology staff has the proper knowledge/competencies in order to detect any operational issue at its early stage and undergo adequate action to solve it avoiding a possible dramatic situation on the rig

Level

Expert

Public

Well site geologists, operation geologists and related positions (subsurface managers, reservoir engineers, petrophysicists, etc.)

Objectives

Attendees will be able to implement the following skills:

- Assess the candidate's knowledge and competencies, ensuring an understanding of the fundamental technical aspects of the position, as well as their roles and responsibilities on the rig
- Identify areas where each candidate's knowledge or competencies require improvement.
- Recommend appropriate training actions to address identified gaps and support continuous development

Pedagogical & technical resources

- A Test
- An Individual Interview

Assessment of achievements

The assessment is described in the program

Prerequisites

In order to be eligible for this On-the-Job Skills - IFP Training Certificate, the candidate must provide justification of a university or similar degree/diploma in geology
He/she will also have to provide justification of a career path consistent with the objectives presented in this reference document as a well site geologist, an operation geologist or equivalent specialties related to operation geology. Especially, the candidate must justify of at least four experiences on a rig as a well site geologist

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TEST — 4 hours

The Test is an on-line exam composed of one hundred eighty (180) randomly selected questions of various types (multiple choice questions, true/false questions etc.) extracted from a wide database of questions covering the required knowledge and know-how on eleven disciplines: Drilling, Pore Pressure Evaluation, Mud Logging, Role

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& Responsibilities, HSE, Wireline, Coring, Formation Testing, Log Interpretation, MWD-LWD, Geosteering. Additionnaly they are five (5) key disciplines and five (5) Eliminatory Questions the candidate will have to validate in order to be certified.

INDIVIDUAL INTERVIEW **2 hours**

Organized in three (3) parts:

- Eliminatory Questions (if necessary depending on the Test's result).
- Situation Analysis.
- Additional Skills covering Basic Mathematics, Basic Safety, Role & Responsibility, Communication and Teamwork.

Sessions

Classe virtuelle - From 09/16/2026 to 09/18/2026 **3540 €/HT**

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Training - Subsea Integrity Management (I) - Inspection, Monitoring and Testing

SUBINTI-EN-P | Face-to-face only | 5 days

This course provides technical knowledge pertaining to the integrity management of subsea systems

Level
Skilled

Public
Engineers and technicians whose activity is related to the operation of Oil & Gas subsea facilities

Objectives
Attendees will be able to implement the following skills:

- Fix objectives for inspection campaigns
- Write specifications for the inspection of installation (with ROV, etc.)

Pedagogical & technical resources

- Lectures carry numerous examples from ongoing projects
- Trainers are specialized engineers currently involved in deep offshore projects

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INSPECTIONS & THEIR OBJECTIVES

By contractor (with operator follow-up).
By operator.

DEEP WATER SYSTEMS INSPECTION ACTIVITIES

"Standard" types.
Means, constraints, limitations.
Visual indications specific to deep subsea conditions.
Main challenges.

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INSPECTION PLAN/INTERVALS

Regulatory requirements, RBI approach...
Inspection plan.
Inspection zones, inspection mean times.
Inspection plan revision.

GENERIC SUPPORT DOCUMENTS

SPECIFIC SUPPORT DOCUMENTS

INSPECTION MANAGEMENT DATABASE

Objectives and functionalities.
Contents and structure.
Inputs and outputs.

KEYS FOR THE SUCCESSFUL IMPLEMENTATION OF AN INSPECTION DATABASE

Usability.
Portability.

“INITIAL STATUS” REFERENCES

Technical specifications, manufacturing dossiers.
Inspections reports.
Installation/commissioning reports.

SPECIFIC INSPECTIONS

Flowlines intelligent pigging.
Occurrence/anomaly follow-up.

MONITORING

Adequate response to commands.
Adequate operating parameters.
Sand production monitoring.
Sand erosion monitoring.
Flexible risers/IPBs.
Riser towers/risers.

TESTING

Valves testing.
“Safety valves” testing.
Others.
Control fluid consumption.
Downhole chemical injection flow test.

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Training - Subsea Integrity Management (II) - Non Conformity Management

SUBINT2-EN-P | Face-to-face only | 5 days

This course provides technical knowledge pertaining to the integrity management of subsea systems

Level
Skilled

Public
Engineers and technicians whose activity is related to the operation of Oil & Gas subsea facilities

Objectives
Attendees will be able to implement the following skills:

- Determine integrity characteristics
- Evaluate consequences of failures
- Plan repairs

Pedagogical & technical resources

- Lectures carry numerous examples from ongoing projects
- Trainers are specialized engineers currently involved in deep offshore projects

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PHYSICAL & STRUCTURAL INTEGRITY ISSUES & THEIR MAIN CONSEQUENCES

Stress and fatigue.
External corrosion, internal erosion/corrosion.
Hydrogen induced stress cracking.
External event.
Thermal Insulation, heat loss.
Case studies, prevention & remediation.

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“FUNCTIONAL” INTEGRITY ISSUES & THEIR MAIN CONSEQUENCES

Defective subsea retrievable modules.
“Internal” leakages (passing valves, passing non-return valves…).
Leaks to environment.
Electrical lines/conductors defects.
Monitoring sensors signal loss.
Hydraulic locks.
Chemical lines blockages.

NON CONFORMITY MANAGEMENT

Objective.
Non conformity.
Non conformity “dossiers”.
Non conformity register/database.

MAINTENANCE & REPAIR

Planned events.
Unplanned events.

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Training - Subsurface production optimization

SUBOPT-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of subsurface considerations for production optimization.

Level
Knowledge

Public
E&P technical staff involved in reservoir management or well operations. Reservoir engineers involved in field studies with productivity and artificial lift issues. Development engineers involved in conceptual design with well architecture and artificial lift.

Objectives
Attendees will be able to implement the following skills:

- Select the relevant reservoir characteristics and fluid properties related to well performance modeling
- Understand artificial lift applications and specificities
- Optimize well performance
- Analyze the impact of well completion and equipment on well performance

Pedagogical & technical resources
Interactive lectures and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
Knowledge in reservoir, completion or production engineering

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PVT & RESERVOIR FUNDAMENTALS — 0.75 day

Oil & Gas PVT properties: bubble point, Bo, Rs, GOR, solids...
Reservoir rock and fluids: porosity, permeability, saturation, relative permeability.

RESERVOIR DRIVE MECHANISMS & RECOVERY — 1.25 days

Drive Mechanism Fundamentals.
Secondary & Tertiary Recovery.

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PRODUCTION OPTIMIZATION AT RESERVOIR-WELLBORE INTERFACE — 1.25 days

Pay zone drilling, completion (open hole, cased hole), perforating.
Wellbore treatment: sand control, stimulations (acidizing, hydraulic fracturing).

WELL PERFORMANCE — 1 day

Well deliverability nodal analysis: inflow/outflow.
Flow in the reservoir: Productivity Index (PI), empirical Inflow Performance Relationship (IPR), horizontal wells.
Back pressure equation for gas wells.
Global skin: formation damage, perforation, partial penetration, deviation.
Flow in the wellbore: pressure gradient and Vertical Lift Performance (VLP) curves.
GLR, tubing head pressure, tubing ID impact.
Monophasic vs. polyphasic flow: minimum flowrate/well loading.
Applications - Exercises.

ARTIFICIAL LIFT — 0.75 day

Gas lift: fundamentals, unloading procedure, surveillance and troubleshooting.
Electrical Submersible Pump (ESP): components, design, problems.
Rod pumping and jet pumps fundamentals.
Comparison of the artificial lift methods.

Sessions

Rueil-Malmaison - From 11/30/2026 to 12/04/2026 — **3650 €/HT**

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Training - Preparation to subsurface geology IFP certificate for operation geologists & well site geologists

SUBREF-EN-D | Distance only | 1 day

This course covers the required knowledge and know-how on the five key disciplines of the on-the-job subsurface geology certification

Level
Skilled

Public
Operations geologists, Subsurface Managers or similar specialties related to geology well site operations

Objectives
Attendees will be able to implement the following skills:

- Upon completion of the course, participants should be able to describe well-site geologist's role, tasks and responsibilities and detect operational and pore pressure issues

Pedagogical & technical resources
Interactive presentations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
Degree in geology

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRILLING — 1.75 hours

Well design, Drilling equipment, Procedures.
Deviated wells, Drilling fluids.

MUDLOGGING — 1.75 hours

Sensors and parameters, Sampling, Hole volume.
Gas interpretation, Well Balance indicators, Drilling Chart analysis.

PORE PRESSURE — 1.75 hours

Unit systems.

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Hydrostatic Pressure, Pressure anomalies, Pressure evaluation.
Gas effects.

HSE + ROLE AND RESPONSIBILITIES — 0.75 hours

Principles, Responsibilities, Risk and Accidents, H2S regulations.
WSG tasks and duties, Organization and Hierarchy.

Sessions

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Training - Gas Valorization

SYNGASE-EN-P | Face-to-face only | 3 days

This course provides a technical and economic information regarding the various options for valorizing gas

Level

Awareness

Public

Professionals interested in technical information about the different ways to valorize gas

Objectives

Attendees will be able to implement the following skills:

- Grasp the essence of gas markets, including natural gas and syngas (CO + H2)
- Understand the importance of syngas: production modes and valorization channels
- List the main technologies , their conditions of implementation, some the latest projects

Pedagogical & technical resources

Industry experts share their views of current developments

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

NATURAL GAS — 1 day

Natural gas reserves, conventional or non-conventional.
Production, consumption and trade, utilization of natural gas worldwide.
Field treatment, production and by-products (ethane, LPG's, condensates).
Different ways for gas transportation: pipelines, LNG shipping...
Quality specifications for commercial natural gas.
Valorization of natural gas: as fuel (domestic or industrial uses), generation of other energy types (electrical, cogeneration), car-fuel (CNG, GTL), chemical valorization.

SYNGAS PRODUCTION — 1 day

Composition and feedstocks (natural gas, hydrocarbons, coal).

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Different modes of syngas production: steam reforming, partial oxidation (POx), autothermal reforming.
Gas production from biomass: advantages, yields, constraints. Example of a biorefinery.

SYNGAS VALORIZATION — 0.5 day

Maximization of hydrogen production in the refineries through the shift reaction.
Chemical synthesis: production of alcohol like Methanol, Ammonia and other chemical compounds.
GTL Complex (Gas-To-Liquid): production of liquid hydrocarbons from gas through Fischer Tropsch reaction.
Coal gasification.
Electrical energy production, steam and hydrogen for refining industry: IGCC (Integrated Gasification Combined Cycle).

ECONOMIC ASPECTS OF GAS VALORIZATION — 0.5 day

Investment (Capex), operating costs (Opex), costs for raw materials.
Marketing advantages, environment issues.
Example: comparison of GTL with LNG.
Strategies of different actors: production countries of natural gas, licensers, oil or gas trusts, engineering companies.

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Training - Gas Turbines

TAG-EN-P | Face-to-face only | 5 days

This course provides a good knowledge of gas turbine technology and enhance competency in the selection, operation and maintenance of gas turbines

Level
Expert

Public
Engineers and managers involved in gas turbine operation, maintenance, engineering and purchasing

Objectives
Attendees will be able to implement the following skills:

- Explain the operation and operation of gas turbines
- List the essential elements for the selection of a gas turbine according to the process and conditions at the operating site
- List potential gas turbine incidents

Pedagogical & technical resources

- Case studies of actual gas turbines
- Various illustrations of actual systems
- Interactive course
- Groupwork: overall study of a gas turbine

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS TURBINE EQUIPMENT — 2 days

Classification: typical cycles, heavy duty and aeroderivative designs, applications.
Presentation: main components. Standard and specific machines available.
Construction and design: compression, combustion, expansion. Rotor dynamics, coupling.
Auxiliary equipment:

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- Internal cooling, lubrication, control system, safety devices.
- External auxiliaries: air inlet filters, exhaust stack.

PERFORMANCE 1.5 days

Thermodynamics: ideal and actual gas, behavior during compression and expansion, isentropic and polytropic processes.
Centrifugal and axial compression. Performance, stability and other limits.
Combustion operation. Influence of fuel type. Afterburning for cogeneration purposes. Low NOx designs.
Expansion: single or double shaft design operation. Performance influence of atmospheric conditions, fuel selection. API charts.
Available load characteristics: rotation speed, T3 firing temperature, IGV influences. Open cycle, combined cycle examples.
Case studies: actual performance vs. basic design; troubleshooting and solutions.

SELECTION 0.5 day

Selection criteria according to availability, operational and maintenance requirements.
Bidding: significant information for data sheet definition.

OPERATION 1 day

Start-up and shutdown operation: sequences and trips. Air filtering, lubrication and fuel systems operation.
Performance monitoring and mechanical operation. Maintenance during operation: compressor cleaning devices.
Maintenance objectives and scheduling: operation, load, fuel influences; inspection schedules.
Factors related to available load: rotation speed, T3, IGV. Typical approaches related to Brayton cycle, cogeneration, combined cycle.

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Training - Artificial Lift and Well Intervention Fundamentals

TAWO-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge of artificial lift, workover implementation and killing procedures for a producing well

Level

Knowledge

Public

Participants attending the training program “Drilling & Completion Engineering”

Objectives

Attendees will be able to implement the following skills:

- understand the well performance & identify the need for artificial lift
- describe the downhole & surface equipment for the different techniques of artificial lift
- select the adequate artificial lift method with regard to some specific operational problems
- select the adequate well intervention method with regard to some specific operational problems
- define a well killing program (pumping diagram)

Pedagogical & technical resources

- Exercises on key parameters of artificial lift
- Design of a pumping diagram for killing a well
- Case study for a workover program with an interactive game
- Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ARTIFICIAL LIFT BY CONTINUOUS GAS LIFT — 1 day

Continuous gas lift: principle, well unloading, operating procedure and troubleshooting, field of application.

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ARTIFICIAL LIFT BY PUMPING — 1 day

Sucker rod pumping, Electrical Submersible centrifugal Pumping (ESP): principle, specific completion equipment, operating procedure and troubleshooting, field of application.

TYPES & MEANS OF INTERVENTION ON PRODUCING WELLS — 1 day

Mains types of intervention: measurement, maintenance, workover.
Main means (wireline unit, coiled tubing unit, snubbing unit, workover rig): principles, area of application.

GENERAL PROCEDURE OF A WORKOVER — 0.5 day

Main operation steps: chronology, more tricky operations from a safety point of view, main operations.
Case of depleted reservoirs: losses and formation damage, kick-off after the workover.

WELL KILLING PROCEDURE FOR A PRODUCING WELL — 0.75 day

Killing the well by circulation: area of application, basis procedures (direct or reverse circulation), elaboration of the forward-looking pumping diagram.
Killing by squeeze: area of application, basis procedure, elaboration of the operating program, case where the injectivity test is unsatisfactory, squeeze and bleed-off method.
Final killing phase: observing the well, operations to run after packer “unsetting”.

CASE STUDY: WORKOVER PROGRAM — 0.5 day

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 02/22/2027 to 02/26/2027 — **4420 €/HT**

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Training - Troubleshooting in the Oil and Gas Industry

TBS-EN-P | Face-to-face only | 3 days

This course provides a better understanding of what troubleshooting is and gives keys to solve basic troubleshooting cases on refining and petrochemical equipment and plants

Level

Skilled

Public

Engineers, senior operation personnel or technical supervisory staff interested in solving troubleshooting cases on refining and petrochemical plants

Objectives

Attendees will be able to implement the following skills:

- Troubleshoot main equipment problems: air cooler, distillation column, reactor, furnaces...
- Systematically use an easy-to-implement methodology of troubleshooting

Pedagogical & technical resources

- “Gamification”, quizzes and exercises
- Videos
- Interactive and realistic sessions of troubleshooting cases studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer, such as case studies per group
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TROUBLESHOOTING IN PRACTICE — 0.75 day

What is troubleshooting? Typical cases seen in refineries and petrochemical plants.
How to start with a troubleshooting case: main rules, laws, orders of magnitude often used during a troubleshooting exercise on site (mass and energy balances, pressure and pressure drop behavior, thermodynamical laws...).
Main onsite practical devices used in troubleshooting for temperature, pressure, flows measurements, chemical analysis, gamma scanning... - Advantages and drawbacks, precautions of uses.

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METHODOLOGY — 0.25 day

Overview of different methods used in troubleshooting: 5 Why, RCA, PDCA...
Presentation of an easy-to-implement method based on PDCA. This methodology will be use during all the training to solve the different troubleshooting exercises.
Exercises to implement the methodology on real cases studies.

TROUBLESHOOTING OF EQUIPMENT - CASES STUDIES — 2 days

Troubleshooting case study on industrial equipment.
The objective of these exercises is to list, per equipment, the main operating conditions, the main causes of malfunction or failure and the different solution to implement in order to solve the situation (PDCA Method).
Review of the main causes of malfunction of equipment (troubleshooting checklists):

- Heat exchangers (performances, velocity influence, potential problems, fouling and cleaning, water exchanger, tubes inserts types and influence...).
- Air cooler (optimization, potential problems, fouling and cleaning, fogging system).
- Furnace (combustion and yield, controls, fouling and cleaning, tubes coking...).
- Distillation column (tower tray: efficiency and flooding, commissioning...).
- Reactor (internals, catalysts: potential problems...).
- Vacuum system (functioning, potential problems...).
- Pumps and compressors.

Troubleshooting case study on industrial units.
The objective of these exercises is to summarize and practice all the elements discussed during the course.

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Training - Natural Gas and Electricity Trading

TEG-EN-P | Face-to-face only | 2 days

This training provides participants a global and synthetic view on the risk management of the various trading activities of gas and electricity

Level
Skilled

Public
All managers who need to learn the ways of managing risk in the market of natural gas and electricity

Objectives
Attendees will be able to implement the following skills:

- Understand gas and electricity trading operations and effectively use the various hedging tools in the face of financial risks
- Implement control measures, including market risk and credit risk

Pedagogical & technical resources
Case studies and examples

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MARKETS — 0.5 day

Main features of gas and electricity markets.

RISK MANAGEMENT — 0.5 day

Basic statistics.
Risk typologies:

- Credit risk.
- Market risk.
- Operational risk.

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Value at risk.

HEDGING & MODELING — 0.5 day

Nature.
Products:

- Futures, forwards, swaps, options.

CASE STUDIES — 0.5 day

Compute sensitivities on a gas procurement contract.
Compute the V@R of the contract using Monte Carlo and parametric methods.

Sessions

Rueil-Malmaison - From 09/22/2026 to 09/23/2026 — **2560 €/HT**

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Training - Basin Modeling: Thermicity, Maturation and Migration

TEMIS-EN-P | Face-to-face only | 5 days

This course provides an in-depth and practical understanding of thermal basin modeling in a comprehensive workflow, including modeling of oil maturation and hydrocarbon migration, and leading to the assessment of hydrocarbon potential of an exploration block or a prospect

Level

Skilled

Public

Junior petroleum exploration geoscientists, multidisciplinary-team managers

Objectives

Attendees will be able to implement the following skills:

- Understand source rock maturation and hydrocarbons generation
- Assess most significant basin modeling parameters for regional basin model construction (using the 1D module of TemisFlow™)
- Understand hydrocarbon migration processes (using the 2D module of TemisFlow™) and evaluate the hydrocarbon potential of a given area

Pedagogical & technical resources

- Afternoon sessions are devoted to case studies based on non-proprietary data provided by IFP
- Use of the software program TemisFlow™ (maximum 2 participants per workstation)
- By the end of each afternoon, participants generate short reports which are assessed the following day
- Participants have the alternative of using their own data
- Upon request, the course can make use of a company's regional dataset, provided the latter is made available in advance
- Software used during workshops: with courtesy of Beicip-Franlab

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

SEDIMENTARY BASIN MODELING THROUGHOUT TIME — 1 day

AM: lectures.
Basin types (rift, margin, foreland, etc.).
Subsidence versus time.
Compaction, backstripping.
PM: exercises, introduction to TemisFlow™ 1D module, subsidence curve calculation.

THERMAL HISTORY — 1 day

AM: lectures.
Modes of heat propagation: conduction, convection and advection.
Transient thermal regimes and blanketing effects of sedimentary covers.
Calibration of heat flow for present and past thermal state.
PM: exercises with TemisFlow™ 1D module, influence of heat flow, surface temperature, conductivity.

MATURATION & EXPULSION — 1 day

AM: lectures.
Source rock (kerogen type, Rock-Eval data...).
Kerogen cracking, kinetic parameters determination.
Secondary cracking.
Paleo-thermometers (organic matter, fission tracks, fluid inclusions...).
PM: exercises with TemisFlow™ 1D module, influence of kinetic parameters.

HYDROCARBONS MIGRATION - WORKSHOP — 2 days

Session 1:

- AM: lectures.
- Migration principles.
- Definition of lithologies in basin modeling.
- Archimedes force, capillary pressure.
- PM: introduction to TemisFlow™ 2D module, exercises in TemisFlow™ 2D module, influence of parameters.

Session 2:

- AM: lectures.
- Oil & Gas generation.
- PVT and chemical composition.
- Velocity of hydrocarbon migration.
- PM: exercises with TemisFlow™ 2D module, influence of parameters.

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Training - Waste Water Treatment from Refinery and Petrochemical Units

TER-EN-P | **Face-to-face only** | **2 days**

This course provides a deeper knowledge of waste water treatment processes

Level

Skilled

Public

- Daily and shift staff in charge of operating waste water treatment units and networks
- Operators of waste units undergoing transformation to waste treatment units
- Laboratory, process, and project engineers and staff

Objectives

Attendees will be able to implement the following skills:

- Specify the regulatory criteria defining pollution in a receiving environment with regard to the various characteristics of the waste water encountered
- Identify the fundamental points of the operation and monitoring of pollution control equipment in relation to the physical and biological principles implemented

Pedagogical & technical resources

Equipment demos (material, pictures and videos)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

LOCAL & REGIONAL REGULATIONS — 0.25 day

Operating permit: structure, contents, key chapters, elaboration and updating process.
Waste water specifications. Penalties in case of violation (formal requirements, fines).

WASTE WATER CHARACTERISTICS — 0.5 day

Natural sources and components. Various uses of water in operating units. Effluent rejection points.

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Nature of water pollutants (hydrocarbons, acidity, suspended matters, phenols, sulfides, mercaptans).
Analytical methods used in the laboratory and through on-line analyzers. BOD, COD, TOC.
Pollution mechanisms, impact on environment (insoluble, organic carbon, eutrophization, sludge).
Measurement of pollution: pollutant concentrations, quantities by unit of time. Typicals.

PHYSICO-CHEMICAL WATER TREATMENT PROCESSES — 0.5 day

Process water stripping: typical process scheme, optimum operating conditions.
Settling of insoluble hydrocarbons and sludge. Settling velocity. Settler design types and improvements.
Dissolved air floatation: equipment, flocculation additives, additive mix and operating parameter optimization.
Filtration: various equipment, sand, active carbon beds, other filtration media.

BIOLOGICAL TREATMENT OF WASTE WATER — 0.5 day

Growth of bacteria colonies. Required feed and nutrients. Biofiltration of process water.
Biological treatment technology: bacteria filters, activated sludge basins. Operating conditions.

BIOLOGICAL SLUDGE TREATMENT — 0.25 day

Sludge physio-chemical properties
Thickening methods: settling, press filtration, flocculation-floatation, centrifugation.
Analytical test methods: dry matter, heat value, volatile fractions, heavy metals.
Treatment processes: digester, wet oxidation, thermal hydrolysis, incineration, smell control.

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Training - Oil Terminals, FSO and FPSO

TERM-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge of the technology and operation of oil terminals in general, and of FSO/FPSO in particular (Floating Storage Off-loading/Floating Production Storage Off-loading)

Level

Knowledge

Public

Managers, engineers, staff, technicians and operators whose activities are related to oil terminals (production, marine maintenance, operation, design, manufacturing, trading, control, regulations...)

Objectives

Attendees will be able to implement the following skills:

- Review all loading/unloading operations on oil terminals, FSO's and FPSO's
- Understand technical characteristics of onshore or floating storage facilities
- Understand metering and sampling techniques used to measure volume of marketed oil
- Grasp technology of oil tanker loading facilities (jetty, loading buoy, tandem point...)
- Learn about mooring crew activities, pilotage, port regulations, assess oil terminals HSE hazards and operational constraints

Pedagogical & technical resources

- Highly interactive training by industry specialist lecturers
- Several applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

OVERVIEW OF OIL TERMINALS — 0.5 day

Functions of oil terminals: reception, oil processing, storage, export...
Different actors of an oil terminal.
Crude oil treatment, water treatment...

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Evaluation of terminal storage capacity, tanker loading planning...

ONSHORE STORAGE TANKS — 0.5 day

Different types of storage tank (fixed roof, floating roof). Selection criteria.
Fixed roof tank: shell, roof, bottom, foundation, retention basins and various equipment.
Floating roof tank and various equipment.
Firefighting facilities: water deluge, foam, gas extinguisher...
Safety risks on storage tanks: H2S, dangers of ignition, explosion risk, collapse, static electricity...
Incidents and equipment failures on storage tanks.
Fire types on storage tanks.

METERING OF OIL QUANTITIES: RECEIVED, STORED & EXPORTED — 1 day

Metering and sampling on onshore tank (level, reference temperature scales).
Determination of amounts standard issued.
Counting dynamic transactional, sampling and calibration. Calculation of standard volume and weight.
Maintenance of metering unit and calibration loop and meter calibration.
Presentation of oil exported commercial documents.

FLOATING STORAGE FACILITIES (FSO/FPSO) — 1 day

Presentation of the main functions of a FPSO.
Anchoring the FSO/FPSO.
Technology of floating storage tanks.
Storage tanks of crude oil, methanol ballast. Tanks atmosphere control. Inerting system.
Procedures for storage tanks entry. Incidents.
Safety on-board storage of FSO/FPSO.

EXPORT & MARINE OPERATIONS — 1 day

Tanker approach operations and mooring at: jetty, loading buoy, tandem point...
Tanker loading operations, tanker loading planning, preparations before loading, monitoring during the loading operations and procedures after loading.
International Ship and Port facility Security (ISPS) code: principle, actors, responsibilities, practical difficulties.
Mooring crew operations.
Safety Port Regulations. Pilot activities.
Commercial contracts, demurrage, commercial claims.

TANKERS TECHNOLOGY & TANKER LOADING INSTALLATIONS — 1 day

Ships transport of crude oil (tankers): different sizes of vessels, equipment related to the handling of products (cargo circuit, pump room), ballasting and deballasting, inert gas generation, tank washing.
Different modes of loading tankers: jetty, tandem and buoy. Advantages/drawbacks.
Safety checklist (IMO).
Description of tandem loading point and loading buoy.

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Training - Tight Reservoir Petrophysics

TIGHTPE-EN-P | Face-to-face only | 5 days

This course provides knowledge and understanding of the petrophysical aspects of tight reservoirs

Level

Skilled

Public

Experienced geoscientists and reservoir engineers involved in multidisciplinary teams, willing to widen their knowledge in tight reservoir petrophysics

Objectives

Attendees will be able to implement the following skills:

- Characterize tight reservoir lithology and mineralogy, porosity, water saturation, permeability, capillary and relative permeability, quantify the Total Organic Content (TOC) and calculate Hydrocarbons In Place (HIP)
- Understand and use the log core data in tight reservoirs
- Understand and characterize tight reservoir mineralogy and lithology
- Apply the principles of tight reservoir petrophysics
- Understand the use of petrophysical properties tight reservoir in the characterization and modeling workflow

Pedagogical & technical resources

- Interactive courses and exercises
- Videos and examples with the most known unconventional reservoirs in the world
- Hands-on practice using a real case studies data set (Oil & Gas)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PETROPHYSICS IN TIGHT RESERVOIRS — 1 day

Basic of tight reservoir.
Tight reservoirs in the world.

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Overview of petrophysical properties in tight reservoir.
Log and core data.
Petrophysical model in tight reservoirs.
Petrophysical properties in static and dynamic models.

MINERALOGY & LITHOLOGY — 1 day

Mineralogy of tight reservoirs.
Mineralogy from logging measurements and core data.
Lithology corrections.
Shale volume in tight reservoirs.
Examples from several tight plays in the word.
Lithofacies determination from log data and mineralogy.

PETROPHYSICAL PROPERTIES CALCULATION IN TIGHT RESERVOIRS — 2 days

Porosity calculation in tight reservoirs.
Total Organic Content (TOC) in tight reservoirs.
Water saturation evaluation.
Hydrocarbons in place.
Sweet spots determination.
Permeability and relative permeability.
Capillary pressure.

TIGHT RESERVOIR PETROPHYSICS WORKSHOP — 1 day

Examples from several tight plays in the word.
Hands-on application: 3 different datasets of tight reservoirs (Oil & Gas).

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Training - Liquid Transport by Pipeline

TLPIP-EN-P | Face-to-face only | 4 days

This training provides a deeper knowledge on flow purpose through pipelines, pumps and pumping stations operation, pipe operation optimization and management

Level
Skilled

Public
Technicians and Engineers involved in pipeline operation and/or management

Objectives
Attendees will be able to implement the following skills:

- List possible phenomena that can affect a pipeline
- Associating the phenomenon with the measures to be taken to counter it
- List the parameters concerning the centrifugal pumps ensuring their adaptation to the stresses of the circuit
- List key points for pipeline optimization, maintenance, and safety

Pedagogical & technical resources
Case studies based on industrial situations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PIPELINE OPERATION — 0.5 day

Flow characteristics: flowrate, velocity, mass flow and volume flow, link between pressure and height, product viscosity, friction losses.
Piezometric line, practical use.
Circuit resistance.

CENTRIFUGAL PUMPS — 0.5 day

Technology. Various parts, seals, lubrication.
Survey - Potential damages and incidents.

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Pump types used with pipeline transfer. Variable speed drive.
Pump operation. Performance curves: head-flowrate, power, NPSH, efficiency.
Performances vs rotation speed and impeller diameter change.
Operation limits: minimum and maximum flows.

PIPELINE OPERATION — 1.5 days

Operating point, flow control.
Pump arrangements selection and optimization according to the pipeline characteristics.
Start-up, shutdown, incidents.
Liquid hammer effects.

OPERATION OF EQUIPMENT OTHER THAN PUMPS — 0.5 day

Pipeline fittings: valves types, check valves, pigs, pig stations.
Instrumentation and metering: hydrometers, flowmeters, colorimeters, turbines, metering stations.
Drag reducers: different types, use, properties, implementation.

PIPELINE MAINTENANCE — 0.5 day

Key points.

CONTAMINATION - CONTAMINANTS TREATMENT — 0.5 day

Products segregation. Contaminants management. Product quality issues, customer specifications issues.

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Training - Well Equipment and Operation for Production Engineer

TPP-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge of well operations: from drilling, completion and artificial lift techniques and equipment to well intervention operations

Level

Knowledge

Public

Production engineers and other professionals interested in well operations

Objectives

Attendees will be able to implement the following skills:

- Grasp fundamentals of drilling techniques
- Draw the architecture of a typical well completion and explain the technology of the equipment used
- Understand operating principle and technology of artificial lift pumps
- Comprehend operating principle, monitoring and technology of gas lift systems
- Review main well servicing and workover operations (objectives, principles, equipment...)

Pedagogical & technical resources

- Highly interactive training by industry specialist lecturers
- Several applications and illustrations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF DRILLING — 1 day

Drilling and casing program: function of the different casings, how to determine the drilling and casing program.
Principle of drilling: different types of bits, drilling string, hoisting and pumping functions and material, mud

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and solid treatments, wellheads.
Drilling methods and special operations: drilling parameters, turbo drilling, coring and logging, casing and cementing operations, directional drilling, well control, fishing jobs.
Offshore drilling operations: different types of rigs, specific offshore problems.

FUNDAMENTALS OF COMPLETION OF NORMALLY FLOWING WELLS — 1 day

Operations involved in well completion.
Main factors influencing a completion design.
Connecting the pay-zone to the borehole: open hole and cased hole, drilling and casing of the pay zone, evaluating and restoring the cement job, perforating.
Equipment of naturally flowing wells: functions to be carried out and corresponding pieces of equipment, technology and handling of the main pieces of equipment (production wellhead, tubing, packer, downhole services, subsurface safety valve).

WELL PRODUCTIVITY - NEED FOR ARTIFICIAL LIFT — 0.25 day

Overall approach of the well flow capacity: inflow and outflow performances.
Need for artificial lift.
Main artificial lift techniques.

ARTIFICIAL LIFT BY PUMPING — 0.75 day

Techniques to be covered:

- Sucker Rod Pumps.
- Electrical Submersible Pumps (ESP).
- Progressing Cavity Pumps (PCP)...
- Jet pumps.

For each of these techniques, the following points will be highlighted: principle, technology of the involved pieces of equipment, operating procedure and troubleshooting, installation design, applications, advantages and drawbacks.
How to improve performances and run-life duration?

ARTIFICIAL LIFT BY CONTINUOUS GAS LIFT — 1 day

Operating principle.
Specific completion equipment.
Factors to consider for design.
Unloading, operating problems and selection criteria.

WELL SERVICING & WORKOVER - WELL INTERVENTION — 1 day

Main jobs: measurement, maintenance, stimulation, workover.
Operations on killed wells (workover).
Operations on live wells (well intervention): wireline, coiled tubing, snubbing.

Sessions

Pau - From 10/05/2026 to 10/09/2026	**4320 €/HT**
Pau - From 10/04/2027 to 10/08/2027	**4420 €/HT**

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Training - Train the Trainers

TRAIN-EN-P | Face-to-face only | 5 days

Learn how to effectively train technicians in operating facilities

Level
Skilled

Public
Personnel in charge of training and technical competency enhancement programs

Objectives
Attendees will be able to implement the following skills:

- Specify the elements of preparation and planning of a training program for a new technician
- List the different types of knowledge to be brought to newcomers, in the classroom and in the field
- List the main tools for measuring learning that can be implemented

Pedagogical & technical resources

- Participants are required to practice all the concepts (workshops, exercises, field games)
- Case studies in class and on the field, some participants playing the role of trainees

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including short training presentations given by each participant as part of the chapter "Application to Operational Training in plants"

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

EFFECTIVE CLASSROOM TRAINING PRESENTATION — 1 day

The classroom environment: guidance on how to form groups, optimize room set-up, use training aids and media.
Agenda and organization of training courses. Strategies to motivate adult participants (influential factors).
Speech management: schedule, importance of time and repetition, open and closed questions.
How to encourage trainee active participation. Coping with difficult situations (hostility, stress, conflict).
How to finishing the presentation effectively (key-point participative review).

- Applications: ice-breaking game, perform a technical presentation.

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TEACHING TECHNIQUES — 1 day

The communication process and communicating in a teaching situation.
Transmission of information (distortion of information, loss of information from the sender to the receiver).
Characteristics of adult mentality (motivation, resistance to change, curiosity).
Teaching styles, methods and climate (influence on trainees' behavior).

- Applications: welcome a newcomer, perform a shift relief.

DESIGNING & STRUCTURING A TRAINING PROGRAM — 1 day

Preparing a training program (what, who, where, when and how), from simple to complex ones.
Training planning (well prepared and flexible). Training supports (manuals, textbooks, presentations, exercises).
Definition of learning objectives, verification of their achievement (types of evaluation, timing, frequency).
Use of visual and audiovisual aids, of physical equipment, of field visits.

- Applications: build an operator training program, create an exam.

APPLICATION TO INDUSTRIAL TRAINING IN THE PLANT — 2 days

Training on actual plant documents: P&IDs, operating procedures, equipment drawing, control loop.
Training on the field: equipment understanding and monitoring, safety assessment.
Use of major industrial incident reports for training and sensitization purposes.
Short training presentations by participants, feedback lessons with the complete group.

- Applications: create and discuss operating procedures, field training on pumps, use of accident reports for training.

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Training - Improving trainer's skills

TRAINERS-EN-P | **Face-to-face only** | **20 days**

Provide participants with the methods and tools required to effectively train technicians in operating facilities

Level

Knowledge

Public

Personnel in charge of training and technical competency enhancement programs

Objectives

Attendees will be able to implement the following skills:

- Upon completion of this program, participants will be able to
- Design structured technical training programs adapted to industrial operational contexts.
- Define clear learning objectives and appropriate training activities for technicians and operators.
- Deliver effective training sessions using appropriate teaching techniques and communication strategies.
- Supervise field training activities such as Practical Exercises (PE), On Job Orientation (OJO) and On Job Training (OJT).
- Evaluate trainee performance in operational training situations.

Pedagogical & technical resources

- Participants are required to practice all the concepts (workshops, exercises, field games)
- Case studies in class and on the field, some participants playing the role of trainees

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WEEK 1 - FOUNDATIONS OF TECHNICAL TRAINING AND COMMUNICATION

THE ROLE OF THE TECHNICAL TRAINER — 1 day

Responsibilities of trainers in industrial training programs.

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Knowledge transfer in operational environments.
Challenges of training experienced technicians.

COMMUNICATION AND INTERPERSONAL SKILLS — 1 day

Communication processes and barriers.
Active listening techniques.
Questioning strategies.
Managing difficult interactions during training.

TEAM DYNAMICS AND LEARNING CLIMATE — 1 day

Building trust and psychological safety.
Encouraging participation.
Managing group dynamics in training sessions.

INTRODUCTION TO PEDAGOGICAL ENGINEERING — 2 days

Differences between objectives, content and activities.
Structure of a training sequence.
Learning progression: from simple to complex.

WEEK 2 - DESIGNING EFFECTIVE TECHNICAL TRAINING

TRAINING NEEDS ANALYSIS — 0.75 day

Identifying competency gaps.
Linking operational tasks and training objectives..

LEARNING OBJECTIVES AND TRAINING STRUCTURE — 0.75 day

Writing measurable learning objectives.
Structuring learning progression..

TRAINING PLANNING — 1 day

Organizing training sessions.
Time management in training delivery.

TEACHING METHODS AND LEARNING ACTIVITIES — 1 day

Demonstrations.
Guided practice.
Problem-based learning.
Case studies.

TRAINING MATERIALS — 0.75 day

Training manuals.
Technical presentations.
Exercises and practical activities.

TEACHING TECHNIQUES — 0.5 day

Questioning techniques.
Encouraging trainee participation.
Checking trainee understanding.

TRAINING PLAN PRESENTATION — 0.25 day

Participants design and present a training module.
Peer evaluation and trainer feedback are conducted.

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WEEK 3 - FIELD TRAINING METHODS

FIELD OPERATOR TRAINING PHILOSOPHY — 0.75 day

Principles of operational training.
Learning through real operational situations.

PRACTICAL EXERCISE (PE) — 1.25 days

Design of practical training scenarios.
Preparation of equipment and safety conditions.
Supervision of trainees during exercises.
Debriefing techniques.

TECHNICAL REINFORCEMENT (OIL & GAS EQUIPMENT) — 1 day

Key equipment used in operating facilities.
Basic operating principles.
Safety considerations during technical training.

ON JOB ORIENTATION (OJO) — 1 day

Introducing trainees to operational environments.
Structured observation activities.
Safety supervision.

ON JOB TRAINING (OJT) — 1 day

Learning by performing operational tasks.
Coaching during real work situations.
Performance evaluation.

WEEK 4 - ADVANCED OPERATIONAL TRAINING AND TROUBLESHOOTING

TROUBLESHOOTING TRAINING — 1 day

Understanding process deviations.
Diagnostic reasoning.
Decision-making under operational constraints.

PEDAGOGICAL PLANT ACTIVITIES — 1.25 days

Equipment operation principles.
Dynamic plant loops.
Practical troubleshooting exercises.

OPERATOR TRAINING SIMULATOR (OTS) — 1 day

Simulator training philosophy.
Training on process disturbances.
Scenario-based learning.

HSE TRAINING SCENARIOS — 0.75 day

Safety practices during operations.
Maintenance activities in safe conditions.
Safety audits and risk awareness.

INTEGRATED TRAINING WORKSHOP — 1 day

Participants design and deliver a complete training scenario integrating:

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- Operational troubleshooting.
- Safety constraints.
- Technical decision-making.

Final group debriefing and trainer evaluation.

Sessions

La Mède - From 10/12/2026 to 11/06/2026 **19750 €/HT**

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Training - Wellbore Treatments

TRAIT-EN-P | Face-to-face only | 5 days

This course provides knowledge and skills needed to examine well damage issues and take appropriate actions

Level

Knowledge

Public

Drilling or completion engineers, supervisors, lab or production professionals, non-specialists in wellbore treatment

Objectives

Attendees will be able to implement the following skills:

- identify the nature and the origins of well damage
- choose the adequate stimulation method
- perform a basic calculation of HF & acidizing
- understand the method to select the candidate well for stimulation
- learn how to deal with sand production and water coning

Pedagogical & technical resources

- Animations - Exercises
- Visit of a rock mechanics and reservoir-wellbore interface laboratory
- Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO WELLBORE TREATMENTS — 6 hours

Fundamental reminders on Productivity Index (PI), the skin effect and flow efficiency, the different components

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of the skin.
Productivity issues: cause of low productivity, nature and origins of well damage, location of problems and possible solutions.
Damage due to fluids: mechanisms, prevention.

MATRIX TREATMENT: ACIDIZING... 6 hours

Aims; how it works.
Carbonate rocks and sandstones; inner characteristics, reactivity to injected fluids.
Choosing the acids and the additives.
Choosing the wells to be treated.
Design: preparation, checks and guidelines during the operation, after the acidizing (flow back...), possible cause of failure, coiled tubing...

HYDRAULIC FRACTURING 6 hours

Aims and principles; candidate wells.
Frac fluids and fracture propping.
Calculation models and frac impact on PI.
Design; program, frac evaluation.
Other cases: pre-frac, minifrac, acid frac.

SAND CONTROL 6 hours

Basics: consequences of sand, prediction of sand, sand analysis.
Sand control techniques; case of mechanical processes (determining the gravel and the screens...).
Design: cased hole gravel packing, openhole gravel packing, preparing the gravel pack, various methods, guidelines.

WATER OR GAS SHUT-OFF & DEPOSITS 4 hours

Origin of the problems.
Remedial.
Debate around several examples.
Case study.

KNOWLEDGE ASSESSMENT 2 hours

Sessions

Pau - From 02/15/2027 to 02/19/2027 **4420 €/HT**

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Training - Oil and Gas Field Processing Troubleshooting

TROUBLE-EN-P | Face-to-face only | 5 days

To contribute to troubleshooting operations by identifying and tackling process deviations and abnormal conditions using a structured, step-by-step approach

Level

Knowledge

Public

Field operators, control room operators, supervisors and maintenance technicians, looking to acquire best practices of Oil & Gas production facilities troubleshooting

Objectives

Attendees will be able to implement the following skills:

- Explain operation normal conditions, list common issues on main O&G processes and major equipment
- Identify roots causes to process deviations and abnormal conditions by using a structured, step-by-step approach
- Find an adapted solution to the identified problem

Pedagogical & technical resources

- Training delivery with industry specialist lecturers
- Methodology illustrated by multiple industrial case studies
- Use of a dynamic simulator for process control tuning
- Specific case study related to the actual plant operated by the participants

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer, such as case studies
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

METHODOLOGY — 0.75 day

Troubleshooting flowchart.
Recognize a trouble when occurring. Problem definition using ISHIGAWA fishbone chart.
Methodological approach to identify causes and remedial options.

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CASE STUDIES — 1.25 days

Operating parameters instability.
Compressor failure.
Glycol and hydrate inhibition.
Non-compliance with product specifications.
Pipeline network analysis.
Flowline erosion.

CASE STUDIES (ON SIMULATOR) — 0.5 day

Through dynamic simulation exercises, the participants will study various cases of malfunctions either due to inappropriate tuning of control loop parameters or due to instruments or equipment failures.

SPECIFIC CASE STUDIES IN MINI-PROJECTS (ON SIMULATOR) — 2 days

During these two days, split in small sub-groups and in complete autonomy, the participants will apply the just acquired troubleshooting methodology, based on dynamically simulated and realistic field cases (offshore and onshore production plants). This includes (but is not limited to):

- Description of normal production operations of the unit - review production units current operating conditions.
- Identification and localization of the simulated malfunctions – review of abnormal conditions, operating parameters disturbances phenomena and observed consequences.
- Identification of the most probable causes.
- Prioritization and implementation of solutions.

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Training - Tubing Movement and Forces

TUBMF-EN-P | Face-to-face only | 3 days

This course provides a thorough understanding of tubing movement and forces

Level
Skilled

Public
Completion engineers or technicians

Objectives
Attendees will be able to implement the following skills:

- Analyze data and decide which element(s) or parameter(s) of a completion equipment must be modified to solve problems related to tubing movement
- Write a completion program taking tubing behavior into account
- Analyze correctly a tubing behavior-related problem encountered during operation and provide an adequate solution

Pedagogical & technical resources

- Exercises and a large case study
- Numerous animation and videos

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GENERAL PRINCIPLES — 0.5 day

Presentation of the problem.
Parameters to be verified (worst place and case) and possible cures.
Reference state and present states of the well, various conventions.
Calculation principle.
Computation of temperature and pressure changes.

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CASE OF A DOWNHOLE BINDING DEVICE PERMITTING FREE TUBING MOVEMENT — 1 day

Temperature effect.
Ballooning effect.
Piston effects (not including buckling).
Effect of the friction resulting from the fluid flow.
Buckling effect:

- Awareness to the key parameters.
- Buckling criteria.
- Location of the neutral point and determination of the movement resulting from buckling.

Global effect: movement of the sliding binding device, tension force at the wellhead...

CASE OF A DOWNHOLE BINDING DEVICE PERMITTING NO TUBING MOVEMENT — 0.5 day

Calculation principle.
Estimation of flink.
Determination of flink taking buckling into account.

CASE STUDY — 0.75 day

KNOWLEDGE ASSESSMENT — 0.25 day

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This training course is offered under the **Alliance4Training** brand

Training - Toolbox for Mentors and Apprenticeship Supervisors

TUTBO-EN-P | **Face-to-face only** | **2 days**

This course provides help to mentors in order to fulfill their mission in the operator training program

Level
Skilled

Public
Mentors in charge of training field operators onsite

Objectives
Attendees will be able to implement the following skills:

- List the various information to be communicated to the participants of a work-study program
- Specify the methods of feedback to the participants and other people involved in the client as well as, internally, those of the training organization

Pedagogical & technical resources

- Role playing, putting the new trainers in various training situations on an industrial site
- Extensive group discussions
- Training situations based on actual incident reports

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives, including role playing situation assessment

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GENERAL OBJECTIVES OF OPERATOR TRAINING — 0.25 day

Field Operator Certification program organization.
Teaching method and knowledge assessment.
Conditions for granting the certification.

TRAINING ORGANIZATION & RELATIONSHIPS — 0.25 day

Training book: a standardized document to improve trainee follow-up and communication with trainers.

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Synchronization of the topics seen in class with working practice. Mentors/trainers meetings in the field.
Mentors' missions (integration, on-the-job practical training, verification of acquired knowledge).
Final briefing and participation to the final board of examiners.

MENTOR'S TOOL BOX — 1 day

Teaching know-how:

- Communication techniques, questioning, listening, observing, reformulating, development.
- Assessment techniques: assessment preparation by the mentor, running the assessment meeting.
- What approach to adopt when a trainee is unsuccessful.

Technical knowledge:

- From a real company situation, how to develop training exercises.
- Learning the installation during interventions, detecting and using interesting situations for training.
- Accepting one's limitations; developing strategies to retrieve information.

PRACTICAL APPLICATION: OPERATOR'S INSPECTION ROUTINE CHECKS — 0.5 day

From a video shot or on a plant in the field: case study and mentor's experience.
Observation of the sequence by the participants to make comments and suggest improvements.

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Training - Well Architecture and Directional Drilling in Unconventional Wells

UARCDD-EN-P | Face-to-face only | 5 days

This certifying training aims to provide the necessary knowledge to plan and carry out a directional drilling (geothermal, water, storage, oil, gas), including the architecture

Level

Knowledge

Public

Technicians, tool pushers, site managers, supervisors, superintendents and engineers who will be involved in oil/gas drilling operations

Objectives

Attendees will be able to implement the following skills:

- Select the right position & Calculate different casing strings
- Choose the right wellhead with regards to the casings used
- Know the equipment needed for directional drilling
- Design a directional well & calculate the trajectories of a deviated well in 2D
- Design the drill stem adapted to the well's profiles to reach a target

Pedagogical & technical resources

- Exercises
- Movies
- Work in groups, teamwork
- Computer use for the design of a personal spreadsheet program

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRILLING & CASING PROGRAM — 0.5 day

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Role of casings.
Parameters to be considered to determine well architecture:

- Well type.
- Pore and frac pressures.
- Completion, lithology.

Different types of casings:

- Surface.
- Intermediate.
- Production.

CHARACTERISTICS OF CASINGS — 0.25 day

Geometric, physical and mechanical properties of pipes and connections.
Use of Drilling Data Handbook.

SHOE POSITIONING — 0.25 day

Hypotheses to be considered, casing point - Kick tolerance.
Examples and exercises.

CASING STRING CALCULATION — 0.25 day

Principles and assumptions to remember for the different strings.
Stress cases study:

- Collapse.
- Burst.
- Tension.
- Tri-axial study.
- Safety factors.

Casing selection: examples and exercises.

CALCULATION EXAMPLES — 1 day

Case studies and writing of a spreadsheet in order to determine the casing point, the kick margin, the pressure max...

DIRECTIONAL DRILLING EQUIPMENT — 0.5 day

Specific drilling equipment: downhole motors, rotary steerable system.
Measuring equipment: MWD.

DRILLING ENGINEERING — 1 day

Well planning and trajectory calculations.
Limits of use of a drill string: buckling.
Drill string design.
Torque and drag calculation.
Drilling fluids and cementing program.
Hole cleaning.
Logging.
Well control.

HORIZONTAL & ERD — 0.25 day

ERD, multilateral and short radius.

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CASE STUDIES — 0.5 day

Writing of a spreadsheet in order to determine the trajectory of a 2D well according to the needs.

KNOWLEDGE ASSESSMENT — 0.5 day

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Training - Underbalanced and Managed Pressure Drilling: Applications, Design and Operations

UBD-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical knowledge of non-conventional techniques used in advanced drilling and completion processes to enhance drilling performance and oil recovery

Level

Skilled

Public

Drilling and mud engineers, superintendents and supervisors, and all professionals involved in well planning and operation

Objectives

Attendees will be able to implement the following skills:

- Deal with issues of narrow pore/fracture pressure gradient windows, lost circulation, abnormal pressures, kick/loss situations
- Drill wells in depleted reservoirs
- Acquire basic concepts of managed and underbalanced pressure drilling
- Review various managed pressure drilling methods and equipment
- Identify typical situations calling for managed pressure drilling and assess potential benefit

Pedagogical & technical resources

Several case studies and examples are discussed

Assessment of achievements

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- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIC PRINCIPLES OF MANAGED PRESSURE DRILLING — 6 hours

History, objectives and definitions.
Occurrence and implications of narrow pore and fracture pressures windows on well design and well control.
Dynamic factors affecting bottom hole pressure.

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Mathematics and examples.

MUD CAP DRILLING — 3 hours

History of mud cap drilling.
Pressurized and floating mud cap.
Mud cap operation.

MANAGED PRESSURE DRILLING EQUIPMENT — 3 hours

Rotating control devices.
Chokes.
Drill pipe non return valves and downhole annular valves.
ECD reduction tools.
Coriolis flowmeter, friction pump.

MANAGED PRESSURE DRILLING USING PRESSURE AS PRIMARY CONTROL — 6 hours

Introduction, open and closed back pressure systems.
Automated back pressure system technology.
Continuous circulating system technology.

MANAGED PRESSURE DRILLING USING FLOW AS PRIMARY CONTROL — 6 hours

Process description.
Equipment and technology.
Applications.

UNDERBALANCED DRILLING — 3 hours

Underbalanced drilling objectives and applications.
Underbalanced drilling equipment and operations.

CONCLUSION — 3 hours

Advantages of managed and underbalanced drilling.
Potential and limitations.
Typical applications.

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Training - Unconventional Resources: Environmental Management

UCENV-EN-P | Face-to-face only | 5 days

This course provides a thorough and applied knowledge of the environmental stakes of an unconventional Oil & Gas development project, including key technical requirements and regulations and public perception. This training is focused on key straightforward arguments that resonate with the public

Level

Skilled

Public

Managers, engineers and operations staff involved in the management of environmental issues of unconventional development

Objectives

Attendees will be able to implement the following skills:

- Describe the global prevailing context for unconventional developments for environmental management at worldwide level
- Identify key issues and impacts of specific shale gas activities (exploration, fracking, production)
- Identify key technical requirements and regulations in USA and Europe
- Describe and discuss specific contents of a shale gas Environmental Impact Assessment, mitigation (treatments), and how to develop communication (public participation)

Pedagogical & technical resources

- Highly interactive training by an industry-specialist lecturer involved in several shale gas projects
- Numerous case studies, applications and illustrations and teamwork sessions
- Key Internet references and videos (case studies)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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THE STAKES: A CONTROVERSIAL ENERGY — 0.25 day

Public perception and the industry point of view.

TECHNOLOGIES: KEY ENVIRONMENTAL ISSUES — 0.5 day

Fracking and water.
Hazardous chemicals; proppant.
Waste (e.g. sans, NORM & metals).
Air emissions.
Induced seismicity.

ENVIRONMENTAL REGULATION & IMPACT ASSESSMENT — 1 day

Environmental regulation overview.
Environmental impact assessment (what is specific: e.g. induced seismicity).
Mitigation and emissions treatment (aquifer protection, gas capture...).

WATER MANAGEMENT — 1 day

Introduction to water management.
Produced water and water flowback. Monitoring.
Technologies of water treatment. Selection and monitoring.

SOCIO-ECONOMIC IMPACT & SUSTAINABLE DEVELOPMENT — 1 day

CASE STUDIES (SOUTH AFRICA, DENMARK, USA...) — 0.75 day

Lessons learned.

THE INTERNATIONAL ENERGY AGENCY APPROACH (THE GOLDEN RULES) & INTERNATIONAL OIL & GAS PRODUCERS ASSOCIATION — 0.5 day

Proactive measures.

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Training - Hydrocarbons in Unconventional Settings

UNCON-EN-P | Face-to-face only | 3 days

This course provides a general introduction to various non-conventional hydrocarbons, focused solely on a consistent geological rationale to the different potentially producing objectives, through a “petroleum system” approach

Level

Awareness

Public

- Geologists, geophysicists, engineers, managers, E&P professionals in charge of basin exploration and prospect evaluation
- E&P professionals involved in production of unconventional hydrocarbons

Objectives

Attendees will be able to implement the following skills:

- Understand the geological rationale of unconventional resources as an extension of the petroleum system concept
- Acquire a general knowledge of all unconventional resources
- Understand what is at stake in this recent domain and future potential impacts

Pedagogical & technical resources

- Examples from all over the world commented by an expert
- Interactive discussions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PETROLEUM SYSTEM CONCEPT (REMINDER)	**0.5 day**
UNCONVENTIONAL RESOURCES (PART 1)	**1 day**

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Oil shales.
Heavy oils, extra heavy oils, tar sands.
Geological biogenic gases (ex-early diagenesis, ex-oil biodegradation).
Gas hydrates.
“Clean Coal” (coal bed methane, coalmine methane, underground coal gasification).

UNCONVENTIONAL RESOURCES (PART 2) — 1 day

Shale plays (shale gas, shale oil).
Tight gas in basin centered gas system.

UNCONVENTIONAL RESOURCES FROM AN EXTENDED PETROLEUM PERSPECTIVE — 0.5 day

Burial and thermal history - Source rock maturation.
Kinetic parameter determination, kerogen expulsion and cracking.
Migration of hydrocarbons and pressure regime.

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Training - Unconventional Resources - Shale Gas Fundamentals

UNCONV-EN-P | Face-to-face only | 5 days

This course provides an overview of unconventional hydrocarbons resources, highlighting main technical, economic and environmental issues of shale gas exploration and production

Level
Skilled

Public
Geoscientists, reservoir engineers, petroleum engineers and managers interested in shale gas resources

Objectives
Attendees will be able to implement the following skills:

- Discuss the fundamentals of gas shale formation evaluation
- Discuss about assessment and improvement of unconventional developments productivity
- Discuss about economic and environmental issues of unconventional developments

Pedagogical & technical resources
Interactive courses and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WORLD ENERGY DEMAND & SHALE GAS — 0.5 day

Introduction, definitions, world data resources.

HYDROCARBONS IN UNCONVENTIONAL SETTINGS — 1 day

Exploration aspects: geology and geochemistry.

SHALE GAS STIMULATION — 1 day

Hydraulic fracturing, micro-seismicity interpretation, stress and mapping of fractures.

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Status on fracturing technologies.
Completion design, well orientation, spacing, re-fracturing, fracture load recovery, tracers.

SHALE GAS PETROPHYSICS — 0.5 day

Status of petrophysical evaluation of shale gas accumulations.

SHALE GAS RESOURCES — 0.5 day

Evaluation of resources (in place and technically recoverable). Methodology.

PRODUCTIVITY & FIELD DEVELOPMENT — 0.5 day

Well productivity assessment.
Field development case study:

- Establish well pattern.
- Estimate the plateau rate and duration.
- Build field development spread-sheet.

ECONOMICS — 0.5 day

Economics of development of shale gas - Production costs.

ENVIRONMENTAL IMPACT — 0.5 day

Discussions around controversial issues:

- Impact on water resources by handling large volumes of water. Water treatment.
- Impact on aquifers by drilling and fracturing.
- Environmental impact of shale gas drilling projects.
- Environmental impact of chemicals.

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Training - Oil and Gas Fields Unitization

UNIT-EN-P | Face-to-face only | 3 days

To provide the participants with a comprehensive overview of the various parameters at stake in an oil field unitization project using real-case examples, in order for them to be able to take part in negotiations for oil field unitization contracts

Level

Skilled

Public

Managers et executives from the public and the private sector with a minimum 5-year experience in technical or functional positions in the upstream Oil & Gas sector, having to deal with unitization cases or projects

Objectives

Attendees will be able to implement the following skills:

- Have a critical approach to the main provisions at stake in a unitization contract
- Choose the best suitable type of contract
- Take part in a negotiation team for unitization

Pedagogical & technical resources

- Real-case studies
- Feedbacks from experts in the field of unitization

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION — 0.25 day

Context - Stakes.
Overview of current unitized oil developments.

RESERVES DEVELOPMENT UNDER AN UNITIZATION PROJECT — 0.25 day

Principles.

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Stakes and key factors.
Consequences in terms of development schemes.

UNITIZATION IMPLICATIONS — 0.5 day

Political aspects.
Contractual aspects.
Economic aspects.
Fiscal aspects.

STRUCTURE OF AN UNITIZATION CONTRACT — 1 day

Main provisions.
Cross country case:

- The boundary question.
- Various types of contracts: unitization, commercial agreement, joint development area.
- Study case based on real-case examples.

CASE STUDIES BASED ON RECENT UNITIZED DEVELOPMENT CASES — 1 day

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Training - Well Performance: Shale Gas Wells

UPROD-EN-P | Face-to-face only | 5 days

This course provides the practical, comprehensive understanding and skills needed to master well performance on shale gas plays and make significant contributions to field productivity studies and well performance monitoring

Level

Knowledge

Public

Reservoir, well performance or production engineers and technicians

Objectives

Attendees will be able to implement the following skills:

- Step by step building PROSPER Modeling of shale gas well
- Select the relevant characteristics shale gas system and fluid properties related to well performance modeling
- Optimize well performance
- Analyze the impact of well completion and equipment on well performance
- Analyze the operation process

Pedagogical & technical resources

- Use of the software program PROSPER™ (training license provided for the duration of the course)
- Short lectures alternating with hands-on sessions
- Course ends with a 2-day integrated case study

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO PRODUCTION SYSTEM — 0.25 day

Introduction to well performance nodal analysis: inflow x outflow.

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Overview of PROSPER™ software workflow:

- PROSPER™: building initial well system file.

PVT DATA/PVT MODELING — 0.5 day

Gas PVT properties.

- PROSPER™: building PVT model for shale gas well.

SHALE GAS PLAYS PROPERTIES & WELLBORE INTERFACE — 0.75 day

Shale gas systems characterization- dual porosity, stress dependent permeability, gas desorption.
Shale gas completion stimulation (hydraulic fracturing).
Introduction to well performance analysis of unconventional gas reservoirs.
Effect of productivity parameters for horizontal wells (length, wellbore radius, permeability ''anisotropy'', thickness vs. position ''Well Eccentricity'', drainage area, formation damage ''Skin'').
Derivation of analytical solutions.

INFLOW PERFORMANCE/IPR MODELING — 1.25 days

Inflow Performance Relationship (IPR).
Back pressure equation for gas wells.
Transient gas model for horizontal wells completed and stimulated with multiple transverse fractures.
IPRs for horizontal wells:

- PROSPER™: IPR modeling exercise.

IPR of horizontal drains: shale gas well exercise:

- PROSPER™: fractured horizontal well modeling.

WELLBORE FLOW, OUTFLOW PERFORMANCE/VLP MODELING — 1 day

Fundamentals of multiphase flow: gas-liquid flow, flow regimes (sub vertical, deviated, horizontal wells).
Minimum flow rate/gas well loading (pressure drop through a horizontal well for gas flow, effect of the well geometry TOE up, TOE down).
Pressure gradient and Vertical Lift Performance (VLP) curves.
Tubing head pressure, tubing ID impacts:

- PROSPER™: tubing correlations, VLP modeling of shale gas well.

Flow in a choke.

WELL PERFORMANCE — 1 day

Well deliverability nodal analysis: inflow x outflow on shale gas well:

- PROSPER™: IPR + VLP well performance modeling, prediction, analysis and diagnosis.

Sensitivity study.
Effect of compaction permeability reduction.
Effect of well geometry.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Unconventional Reservoirs Completion and Stimulation

URCS-EN-P | Face-to-face only | 5 days

This course provides a complete overview of the techniques, achievements, challenges of well completion and stimulation of shale gas wells

Level

Knowledge

Public

Professionals within the petroleum and energy industry, who need a knowledge and understanding of the Oil & Gas unconventional production and development techniques

Objectives

Attendees will be able to implement the following skills:

- Recognize the specificities of the unconventional reservoirs, the techniques and challenges of their development and their production
- Distinguish the completion methods of shale gas wells
- Demonstrate the stimulation techniques of shale gas wells
- Identify the impact of fracturing parameters on well productivity
- Assess and measure the success of these operations

Pedagogical & technical resources

- Interactive animations
- Use of several illustrations: videos, field cases
- Numerous exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRILLING & CASING PROGRAM FOR DIRECTIONAL & HORIZONTAL WELLS — 0.5 day

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Introduction: directional and horizontal drilling, objectives, well geometry...
Directional drilling equipment: downhole motors, rotary steerable system, measuring equipment 'MWD'.
Drilling consideration of deviated and horizontal wells: torque and drag, bucking, hole cleaning...
Casing program for horizontal wells.

COMPLETION DESIGN — 0.5 day

Introduction to well completion and hydraulic fracturing.
Completion design, operations, equipment.
Plug and perf technique.
Ball and sleeve technique.
Actual completion trends: examples.
Technological challenges: new techniques.
Stimulation: fracturing techniques & design (horizontal multistaged hydraulic fracking techniques & operations).

INPUT & FRACTURE DESIGN — 1.75 days

Requirement for fracture design.
Rock mechanics for fracturing design.
In situ stress, fracture orientation and fracture propagation.
Different types of pressures: net pressure, tortuosity, friction.
Fluid leak-off, slurry efficiency, dimensionless fracture conductivity.
Fracture growth analysis.
Hydraulic fracturing models.

FRACTURING FLUIDS, PROPPANTS & FRACTURE CONDUCTIVITY — 1 day

Types of fracturing fluids.
Types of proppants.
Fluid and proppant selection.

EQUIPMENT & PLACEMENT TECHNIQUES — 0.5 day

Surface pumping equipment.
Placement techniques in horizontal wells.
Planning and executing operation.
Flow back techniques: wellhead isolation tool, frac valve.

FRACTURE MAPPING & POST-JOB ANALYSIS — 0.5 day

Mapping: well test, tracer and micro-seismic.
Post-job evaluation.
Environmental considerations of hydraulic fracturing.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Utilities - Environment Management

UTILENV-EN-P | Face-to-face only | 5 days

Utility production processes and equipment (water, steam, electrical power, air) Management of environmental issues (air, water, waste, management system)

Level

Knowledge

Public

Engineers and supervisors from operations and technology departments of Refining/Petrochemical sites

Objectives

Attendees will be able to implement the following skills:

- List the design and optimization criteria of a utility production scheme (steam, electricity, water, air) with regard to environmental constraints
- Identify operational optimization points for utility units and networks, taking into account environmental constraints

Pedagogical & technical resources

- Videos to demonstrate the implementation of the various technologies
- Practical exercises on the design and/or operation of each utility
- Actual case studies, learning games and quizzes to test participants' learning

Assessment of achievements

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- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BFW QUALITY - STEAM PRODUCTION — 1 day

Boiler feed water quality, drawbacks resulting from impurities. Production of boiler feed water. Condensate recovery. Steam pressure levels, user types, network control, turbines, static expansions. Water-tube boiler: water and steam circuits, air and stack (equipment and control). Other boiler types.

ELECTRICAL POWER PRODUCTION & SUPPLY — 0.5 day

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Quality requirements: power and voltage. Production: generators, gas turbines, cogeneration.
Electrical network: key-equipment, transducers, grounding, back-up supply, safety and reliability.

COMPRESSED AIR GASES — 0.5 day

Process requirements and reasons, air supply criticality. Instrument air: compressors, dryers.
Network, back-up supply. Nitrogen production: design, uses and risks. Uses and risks of O2 and CO2.

INDUSTRIAL WATER NETWORKS — 1 day

Cooling water networks (open, closed, semi-open). Use of sea water, design and operations.
Cooling tower design: key parameters, sizing rules, prevention of operational concerns.
Fire fighting water network: key design elements, main equipment, good practices.

AIR POLLUTION MECHANISMS & PREVENTION — 1 day

Main atmospheric pollutants (CO2, SOx, NOx, VOC). Environmental impacts (global warming, acid rains, ozone).
Measurement of atmospheric pollution, reaction procedures.
Main sources of pollution. Prevention methods: combustion and storage equipment.
Vapor recovery units. Sensitization. Flare systems. Vent and drain networks.

WATER POLLUTION & WASTE WATER TREATMENT — 0.5 day

Pollution sources in refining. Waste water effluent typical specifications. Quality control.
Treatment of oily water (settling, floatation, biological) and process water. Finishing options.

ENVIRONMENTAL MANAGEMENT SYSTEM — 0.5 day

Other pollution mechanisms: soil, solid waste, noise, smells. Prevention and remediation.
Importance of environmental regulations. Environmental impact assessment. ISO 14001 standard.

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Training - Hydrogen Production Unit

VAPOREF-EN-P | **Face-to-face only** | **2 days**

This course provides a deeper understanding of the operating and monitoring of steam reformers

Level
Skilled

Public
Engineers, supervisors and staff interested or involved in the operation of a SMR unit

Objectives
Attendees will be able to implement the following skills:
- Describe the steps of the process

Pedagogical & technical resources
- The content of this course can be adapted to the customer's needs. The pedagogy is focused on the units concerned, under cover of a secrecy agreement if necessary
- Case studies handled in groups, based on typical situations of the sections studied
- Possible contribution of experienced staff reporting his industrial experience of the operation on a daily basis

Assessment of achievements
- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ANALYSIS OF SMR OPERATING CONDITIONS — 1 day

Main hydrogen manufacturing processes.
Objective of the successive steps: desulfurization, steam reforming, CO shift, hydrogen purification.
Process flow scheme.
Material balance, conversion, yields at various steps.
Feedstock and product quality: natural gas, demineralized water, hydrogen quality.
Operating conditions and control loops.
Characteristics of the chemical reactions involved: thermodynamic and kinetic aspects, their consequences on the operation, side reactions and optimum operating conditions to limit their evolution.
Role and mechanism of a catalyst: chemical and physical characteristics, effect of poisoning and ageing.

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Influence of operating conditions on hydrogen production and on downstream steps.
Hydrogen purification:

- Adsorption (PSA) and methanation: comparison of performances.
- Influence of operating parameters on hydrogen purity, CO2 absorption and amine regeneration.
- PSA unit characteristics and operation.

STEAM REFORMER FURNACE OPERATION 0.5 day

Different types of furnaces: technology, furnace efficiency, operating parameters, control and safety loops.
Catalyst loading procedure.
Behavior of the tube bundle. Mechanical and thermal stress.
Routine operation and main operating constraints.

STEAM PRODUCTION 0.25 day

Water preparation: drawbacks arising from impurities in water, water quality measurement, characteristics of feed water, thermal degassing, chemical conditioning of water.

OPERATION & START-UP - DISTURBANCES & TROUBLESHOOTING 0.25 day

Key operating parameters and overall process optimization, interactions between process steps, catalyst cycles management.
Principles of start-up procedure: preparation, ignition, temperature build-up, feed in.
Disturbances: modification of the steam/HC ratio, decrease of feed flowrate, change in feed composition.
Incidents: pretreatment reactor runaway, tube rupture in the furnace, absorption section bypassing.

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Training - Environmental Pollution and Waste Management

WASTMGT-EN-P | Face-to-face only | 5 days

This course provides a thorough and applied knowledge of efficient techniques, industry standards and best practices for managing waste and environmental pollution

Level

Knowledge

Public

Managers, advisors, engineers and operations staff involved in the management of environmental issues all along the lifetime of a field development: from design to operation

Objectives

Attendees will be able to implement the following skills:

- Understand the stakes for the Oil & Gas industry for environmental management
- Understand contents of environmental impact assessments and mitigations (treatments)
- Identify mitigation measures, air treatment techniques, wastewater treatment, wastes treatment, soil remediation
- Implement an oil spill contingency plan, including the combating strategy
- Select key performance indicators and set up monitoring with environmental management plans

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations, case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO WASTE & POLLUTION MANAGEMENT — 0.25 day

Environmental stakes of Oil & Gas companies and projects.
Environmental mitigation measures principles.

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ATMOSPHERIC POLLUTION & TREATMENT — 1 day

Air emission and pollutant inventory. Greenhouse gases.
Flare emissions reduction techniques.
Case studies:

- Gas injection and gas lift.
- Gas valorization strategies.

Process emissions reduction. Control of fugitive emissions.
Reduction of emissions related to power generation:

- Electrification.
- Energy efficiency strategies.

Logistics management to reduce emissions.

WASTE EFFLUENT POLLUTION & TREATMENT — 1.25 days

Waste effluent inventory (production water, cooling water), pollutants.
Production water treatment and disposal:

- Primary: API tanks, plate separators.
- Secondary: flotation, coalescent filters, hydrocyclones.
- Tertiary: membranes, biological treatments.
- Chemicals and chemical treatments.
- Water injection.

Open drain and closed drains: collection and treatment.
Drilling fluids treatment:

- Water base mud recovery and cuttings treatment.
- Oil base mud recovery and cuttings treatment.

Domestic effluents treatment:

- Isolated camps treatment options.
- Permanent camps treatment options.

OIL SPILL RESPONSE AT SEA - TECHNOLOGIES — 1 day

Content of an oil spill contingency plan.
Offshore spill treatment (dispersants, booms and recovery...).
Onshore spill treatment (pumping, skimming, bioremediation, thermal desorption...).

SOLID WASTE TREATMENT TECHNOLOGIES — 0.5 day

Chemical treatments.
Physical treatments.
Disposal methods: advantages/drawbacks.

POLLUTION & REMEDIATION TECHNIQUES — 0.75 day

Treatment selection: in-situ, onsite, ex-situ.
When and how applying technologies: physical, chemical, biological treatments.
Case study.

MONITORING & REPORTING — 0.25 day

Main key performance indicators related to pollution control and waste treatment.

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Training - Well Integrity Engineering

WELINTE-EN-P | Face-to-face only | 35 days

This course provides in-depth technical knowledge of well integrity design, management, and maintenance in order to hold rapidly and very effectively, the position of field engineer, design engineer or project engineer

Level

Knowledge

Public

Engineers (particularly recently graduated engineers or engineers in conversion) looking to acquire in-depth knowledge and best practices of Oil & Gas production

Objectives

Attendees will be able to implement the following skills:

- Calculate different casing strings applying well integrity roles
- Select the right position of casing shoes to safely drill the well
- Select the casings as per the constraints encountered while drilling in order to maintain the well integrity
- Design primary cementing techniques and procedures and select cement and necessary additives
- Assess the quality of a cementing job and which equipment is required in a conventional case
- Design the corresponding completion safe procedures calculate tubing movement and forces
- Work on complex completion issues with specialists and select the wellhead according to operational conditions
- Write and supervise maintenance and testing procedures on wellhead
- Recognize the technical, operational and organizational solutions applied to well integrity management
- Design the process of well integrity management and review well integrity within the framework of all strategic operations

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Multiple teamwork sessions and industrial case studies
- Numerous animations & videos
- Knowledge assessment on a weekly basis

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

ep.contact@ifptraining.com

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IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CASING DESIGN & APPLICABLE STANDARDS — 5 days

Drilling and casing program, wellhead, characteristics of casing.
Shoe positioning: hypotheses to be considered, casing point. Kick tolerance, casing point. Kick tolerance & well integrity.
Casing String Calculation: principles and assumptions, stress cases study (collapse, burst, tension, triaxial study, safety factors).
Casing selection.

CEMENTING: PRIMARY & REMEDIAL, QUALITY CONTROL OF CEMENT — 5 days

Techniques and job procedures: primary cementing, cement job design, job planning and preparation, casing running, cementing job, cementing calculations.
Cement and slurries: cement, special slurries and additives, formulation and laboratory tests, rheology of mud and slurries.
Cement equipment: pumps, mixers, cementing head, cement plugs.
Cement job evaluation: principles and interpretation of the cement logs, thermometry, Sonic (CBL - VDL), Ultrasonic (USIT), log analysis on a real case.

WELL COMPLETION EQUIPMENT, DESIGN, ACCEPTANCE CRITERIA — 5 days

Well completion equipment: functions to be carried out and corresponding equipment.
Production string(s) configurations (conventional or tubing less, single or multi-zones).
Production wellhead, tubing & connections, packers and accessories, bottom hole devices.
Subsurface safety valve (subsurface controlled, surface controlled).
Calculation of tubing movement and forces.
Well completion preparation and Implementation.

FLUIDS BEHAVIOR & FLOW ASSURANCE — 5 days

Thermodynamic applied to well effluent.
Flow patterns, main considerations.
Deposits and sand production monitoring and maintenance.
Corrosion monitoring and maintenance.

WELL HEAD MAINTENANCE & WELL INTERVENTION — 5 days

X-mas tree specifications: X-mas tree (natural flowing wells), gas well X-mas tree, requirement for materials, X-mas tree equipment and selection (MV, SSV, SV, WV, choke).
Wellhead monitoring and maintenance: Wellhead installation procedures, Wellhead protection during well intervention (pre-job and post job), Surface equipment monitoring maintenance, function tests, pressure test, plan & execute maintenance. Well reinstatement.
Mains types of intervention: measurement, maintenance, workover.
Main means (wireline unit, coiled tubing unit, snubbing unit, workover rig): principles, area of application, general procedures & well killing procedures & calculations.

WELL INTEGRITY MANAGEMENT — 5 days

Well integrity management system: introduction, assets, organization and people, WI Direction.
Well integrity design and standards; well construction/completion
Well barriers: definition, requirement & design. Wellhead and tree equipment: valves, seals, accessories, Safety valves: downhole, surface. Leak detection.
Minimum integrity requirements vs. well life cycle/phases.

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Annulus pressure management. Plug & Abandon, Handover.
Role and responsibilities over the various operational life of the well.

WELL INTEGRITY PROJECT — 5 days

Project & presentation in front of a jury: the trainees perform a well integrity review on a drilling & completion project provided by IFP Training.

- Verification of casing design & selection.
- Verification of completion design & material selection (tubing, SCSSV, well head & accessories).
- Surface & subsurface well integrity tests
- Presentation in front of a jury.

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Training - Well Integrity

WELINT-EN-D | Distance only | 5 days

This course provides an introduction to the fundamentals of Well Integrity. It covers the notions of well barrier envelopes and well barrier elements from design until abandonment of a well and their validation. It will describe how to pro-actively monitor and manage well integrity through dedicated tools, structures, organizations and techniques. Reference industry standards as well as Plug and Abandonment principles are also presented. Various real cases and calculations will be used to illustrate the concept and engineering aspect of well integrity.

Level

Skilled

Public

Drilling, completion and production engineers and technicians

Objectives

Attendees will be able to implement the following skills:

- Recognize the importance and the concepts of well integrity
- Understand the notion of well barriers and the importance of well monitoring
- Identify critical elements
- Explain typical failures and their mitigations
- Understand the well integrity structure to ensure sound management of well integrity

Pedagogical & technical resources

- Videos and animations showing how equipment work
- Practical exercises and knowledge assessment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL INTEGRITY & WELL LIFE CYCLE — 1 day

Course objective.

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What is well integrity, why is it so important.
Well life cycle: from cradle to grave, build and safeguard.
Typical well architecture, well barrier, well barrier elements, safety critical elements.

WELL BARRIER, LEAKS, STANDARDS — 1 day

Detailed review of WBE (subsurface, surface), selection and validation.
Cement evaluation (sonic and ultrasonic logs).
Leaks types and leak rates, calculations.
Corrosion, erosion and their effects, degradation.

OPERATIONAL PHASE & MONITORING — 1 day

Introduction to International Standards.
Annulus monitoring and basis of calculations (MAASP, MAWOP, MINAP).
Trend analysis.
Case study - Exercises - Sustained casing pressure.

WELL INTEGRITY ORGANIZATION — 1 day

Well failure model, mitigation plans, risk assessment, ALARP principles.
Well Integrity management system.
Hand overs and documentation.

P&A & DECOMMISSIONING — 1 day

Temporary abandonment and permanent abandonment.
Fundamentals and techniques.
Real case study.

Sessions

Classe virtuelle - From 11/02/2026 to 11/06/2026 — **4320 €/HT**

Classe virtuelle - From 11/01/2027 to 11/05/2027 — **4420 €/HT**

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Training - Well Integrity

WELINT-EN-P | Face-to-face only | 5 days

This course provides an introduction to the fundamentals of Well Integrity. It covers the notions of well barrier envelopes and well barrier elements from design until abandonment of a well and their validation. It will describe how to pro-actively monitor and manage well integrity through dedicated tools, structures, organizations and techniques. Reference industry standards as well as Plug and Abandonment principles are also presented. Various real cases and calculations will be used to illustrate the concept and engineering aspect of well integrity.

Level

Skilled

Public

Drilling, completion and production engineers and technicians

Objectives

Attendees will be able to implement the following skills:

- Recognize the importance and the concepts of well integrity
- Understand the notion of well barriers and the importance of well monitoring
- Identify critical elements
- Explain typical failures and their mitigations
- Understand the well integrity structure to ensure sound management of well integrity

Pedagogical & technical resources

- Videos and animations showing how equipment work
- Practical exercises and knowledge assessment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

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Program

WELL INTEGRITY & WELL LIFE CYCLE — 1 day

Course objective.

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What is well integrity, why is it so important.
Well life cycle: from cradle to grave, build and safeguard.
Typical well architecture, well barrier, well barrier elements, safety critical elements.

WELL BARRIER, LEAKS, STANDARDS — 1 day

Detailed review of WBE (subsurface, surface), selection and validation.
Cement evaluation (sonic and ultrasonic logs).
Leaks types and leak rates, calculations.
Corrosion, erosion and their effects, degradation.

OPERATIONAL PHASE & MONITORING — 1 day

Introduction to International Standards.
Annulus monitoring and basis of calculations (MAASP, MAWOP, MINAP).
Trend analysis.
Case study - Exercises - Sustained casing pressure.

WELL INTEGRITY ORGANIZATION — 1 day

Well failure model, mitigation plans, risk assessment, ALARP principles.
Well Integrity management system.
Hand overs and documentation.

P&A & DECOMMISSIONING — 1 day

Temporary abandonment and permanent abandonment.
Fundamentals and techniques.
Real case study.

Sessions

Pau - From 06/14/2027 to 06/18/2027 — **4420 €/HT**

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Training - Well Production Integrity Management

WELINTM-EN-P | Face-to-face only | 5 days

To deepen knowledge of well integrity management and develop the skills for designing, operating and maintaining well equipment with the ultimate objective of ensuring a permanent, safe containment of all wellbore fluids

Level

Skilled

Public

Drilling, completion and production engineers and supervisors

Objectives

Attendees will be able to implement the following skills:

- Recognize the technical, operational and organizational solutions applied to well integrity management
- Design the process of well integrity management
- Review well integrity within the framework of all strategic operations
- Focus, maintain and design of well integrity assurance
- Recognize the role of production supervisor's duties with regard to well integrity

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL INTEGRITY MANAGEMENT: DEFINITION & CHALLENGES — 0.25 day

Introduction.
Assets.
Organization and people.
WI Direction.

WELL INTEGRITY DESIGN — 1.5 days

Well construction/completion: casing, tubing, cement, produced fluids.
Well barriers: definition, requirement and design.

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Wellhead and tree equipment: valves, seals, accessories.
Safety valves: downhole, surface.
Well integrity standards.

WELL INTEGRITY OPERATIONS — 2 days

Flow assurance (corrosion, sand & deposits).
Safety critical equipment/barriers.
Monitor and manage a pressure:

- Role and responsibilities.
- Monitor/perform well equipment test.
- Ensure safety critical equipment are operational.
- Report any abnormal operating condition.
- Your role over the various operational life of the well.

Well integrity maintenance:

- Downhole/well equipment maintenance.
- Surface equipment maintenance.
- Plan & execute maintenance. Well reinstatement.

Your role as a part of well integrity team:

- Perform routine maintenance (site specific requirement).
- Prepare well for maintenance/well intervention operation.
- Restart well after maintenance operation.

Today's successful well integrity team:

- HSE goal and leadership.
- Understand site specific well design decision/equipment.
- Handover and reporting best practices.
- Major incident prevention by implementing WIM awareness.

WELL INTEGRITY MANAGEMENT (WIM) — 1 day

Introduction, concepts and definitions.
WIM key activities.
Minimum integrity requirements vs. well life cycle/phases.
Annulus pressure management.
Data management.
Well integrity review.
Well integrity performance management.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - WELLCAT

WELLCAT-EN-P | Face-to-face only | 5 days

This course enables participants to effectively use WellCat in their daily engineering activities to perform thermal and stress analyses, evaluate tubular integrity, and support well design and operational decisions

Level
Skilled

Public
Drilling and completion professionals seeking to strengthen their well design expertise and gain hands-on experience with WellCat

Objectives
Attendees will be able to implement the following skills:

- Use WellCat in their daily engineering activities to perform thermal and stress analyses
- Evaluate tubular integrity
- Support well design and operational decisions

Pedagogical & technical resources

- Model data in WellCat to support tubular design and integrity analysis.
- Perform and interpret thermal simulations for drilling and production operations
- Configure and execute stress analysis using relevant load cases and initial conditions
- Conduct tubing stress analyses, including packer configuration and completion design considerations
- Evaluate tubular integrity and generate WellCat reports to support engineering decisions.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
Participants should have completed the Well Architecture module or have a good understanding of the well design process

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELLCAT BASICS AND MODELLING OF OPERATIONS IN THE DRILL MODULE — 1.5 days

Basic Well information:

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- The wellbore menu.
- Inventories; how to add new items.
- See how well data entry fields relate to reality.
- Define a well from scratch or use another as starting point?

The Drill Module – Thermal simulations for drilling operations:

- Learn howe to use drilling simulated temperatures to properly define initial conditions for casing strings, focus on critical production and intermediate strings.
- Define conditions for several thermal simulations.
- Continue Running the program; review all results.
- Discuss and interpret results.

MODELING OF OPERATIONS IN PROD MODULE — 0.5 day

The Prod module – Thermal simulations for Production Operations:

- Define conditions for several thermal simulations.
- Run the program; review all available results.
- Discuss and interpret results.

PERFORMING STRESS ANALYSES — 1 day

The Casing Module – Stress analysis for Casing strings:

- Define conditions for stress analysis of the Production Casing; Initial Conditions and Load Cases.
- Including Point Stresses from the Tubing Stress analysis.
- Run the program and review all available results.
- Discuss and interpret results.

STRESS ANALUSES IN TUBING MODULE — 1.5 days

Packer definition in WellCat.
Define conditions for a stress analysis of Tubing; Initial Conditions and Load Cases.

- Run the program and review all available results.
- Discuss and interpret results.
- Tubing & Completion design considerations – sensitivity with the packer options.

BRIEF DISCUSSION ON MULTI-STRING MODULE — 0.25 day

PRINTING WELLCAT REPORTS — 0.25 day

What reports are available and how to print them.
How to create new reports.

Sessions

Pau - From 11/16/2026 to 11/20/2026	**6890 €/HT**
Pau - From 11/15/2027 to 11/19/2027	**7050 €/HT**

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Training - Well Operation and Testing

WELLOP-EN-P | Face-to-face only | 5 days

This course provides a comprehensive knowledge for the monitoring of eruptive and activated wells, as well as the monitoring and validation of well tests

Level

Knowledge

Public

Experienced method engineers, technicians and operators involved in well monitoring in Oil & Gas production facilities

Objectives

Attendees will be able to implement the following skills:

- List equipment comprising eruptive and activated wells, including surface equipment for gas lift
- Analyze well behavior and well material balance
- Efficiently identify abnormal conditions on eruptive and activated wells
- Efficiently operate and monitor gas lifted wells, monitor wells safety test
- Troubleshoot activated wells instabilities for tests validation

Pedagogical & technical resources

- Highly interactive training by industry specialist lecturers
- Several applications on eruptive and activated well dynamics
- Several exercises on well material balance following well test

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ESSENTIALS OF RESERVOIRS & WELL EQUIPMENT — 0.5 day

Hydrocarbon in place. Composition and volume.
Permeability/porosity/reservoir/borehole interface. Productivity Index (IP).

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Various completions; eruptive wells/activated wells.
Role of completion.
Hydrostatic and dynamic wells:

- Conditions for eruptive wells.
- Notions of fluid flow. Pressure drop/skin effect.

ARTIFICIAL LIFT — 2.5 days

Stimulation and activation principle.
The various methods of activation.
Well activation by gas lift:

- Gas lift principle.
- Pros and Cons.
- Bottom hole and surface gas lift equipment.
- Gas lift valve: role/technology.
- Start-up methods in gas lift well.
- Operation of multiple wells.

WELL INTERVENTIONS - WORKOVER, WIRELINE, METROLOGY - SAFETY — 1 day

Heavy/light wells intervention. Equipment.
Wireline/workover operations.
Metrology associated with the operating mode for eruptive or activated wells.
Downhole and surface safety equipment.
Safety levels.

WELL MONITORING & TESTING - TEST SEPARATOR — 1 day

Test separator:

- Equipment, metrology and test separator control.
- Control and stability of tested well.
- Metering equipment.
- Wells parameters determination: GLR, GOR, WOR, BSW, Specific gravity...
- Sampling procedure.

Multi-Phase Flow Meter (MPFM):

- Operating principle and equipment technology.
- Results analysis.

Stability control and well test validation.
Potential problems. Tuning difficulties: analysis, solutions.
Troubleshooting of gas lift wells.
Troubleshooting of wells activated by Electric Submersible Pump (ESP).

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Training - Well Test Operation

WELTEST-EN-P | Face-to-face only | 5 days

This course provides the required comprehensive knowledge and skills for implementing well tests

Level
Skilled

Public
Drilling and production engineers, supervisors involved in well test operation, reservoir engineers

Objectives
Attendees will be able to implement the following skills:

- understand the purpose of well testing
- distinguish the different perforation methods
- select the required well test equipment
- design an operational well test program with regard to the reservoir engineer's requirements
- supervise the well test operation

Pedagogical & technical resources

- Several practical examples and case studies
- Numerous videos and animations

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL TESTING FUNDAMENTALS — 0.5 day

Principle and objectives of well testing.
Basic data for predevelopment studies.
Fundamentals of fluid flow in porous media.

DRILL STEM TEST, PERFORATION & WELL TESTING EQUIPMENT REVIEW — 2 days

Principle of DST operation.

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Principle of perforation operation:

- Perforation methodology.
- Equipment selection versus well configuration and objectives.
- Perforation tools demo (movie).

DST string versus rig types:

- Principle of DST String versus well testing objectives.
- Composition of different DST strings.

Principle of DST String:

- DST String type composition review.
- DST tools demo (movie).

Well testing operation and surface set up:

- Surface equipment and set up.
- Well testing sequences of operation.
- Surface well testing equipment.
- Well testing HSE concept.
- Data acquisition.
- Sampling.
- Well testing calculations.

PROGRAM IMPLEMENTATION, ORGANIZATION & RESPONSIBILITIES, WELL ABANDONMENT, DST IN SUBSEA ENVIRONMENT — 2.25 days

DST operations and well test program implementation:

- Standard procedures reviews versus DST string type.
- Running in hole the DST string.
- Brine selection and weight.
- Selection of the ΔP on the formation.
- Operation instructions review.
- Sampling.
- Cases studies.

Organization on board of the rig, roles and responsibility:

- Safety instructions.
- Contingency plan.

Well abandonment after DST operation:

- Well killing operation.
- Well abandonment and safety concerns.

Principle of DST operation in subsea environment:

- Deep water DST operations subsea equipment.
- Deep water DST operations.
- Deep water environment operation impact: wax deposition, paraffin, hydrates.
- Deep water operations contingency plan.
- DST tools demo (movie).

KNOWLEDGE ASSESSMENT — 0.25 day

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Sessions

Pau - From 04/19/2027 to 04/23/2027 **4420 €/HT**

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Training - Wellhead and Blowout Preventers

WHEAD-EN-P | Face-to-face only | 3 days

This training aims to deepen knowledge and detail wellhead equipment (geothermal, water, storage, oil, gas) as well as their use

Level
Skilled

Public
Personnel of operators, contractors and service companies who will be involved in geothermal, water, storage or oil/gas drilling operations, wishing to improve their knowledge of the wellhead equipment necessary for the execution of a drilling program

Objectives
Attendees will be able to implement the following skills:

- Choose the equipment (wellhead, BOP, ancillary equipment) to design a well
- Detect operating problems
- Check the equipment used

Pedagogical & technical resources
Videos and animations showing how equipment works

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ONSHORE WELLHEAD & BLOWOUT PREVENTERS — 9 hours

Onshore wellhead:

- Functions, principles and technology.
- Setting procedure.
- Evolution of the wellhead according to drilling phase.

Blowout preventers:

- Function and different types.

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- Characteristics and technology.

AUXILIARY EQUIPMENT — 6 hours

Closing and accumulation hydraulic unit.
Choke manifold, chokes, valves...
Mud gas separator.

SUBSEA EQUIPMENT — 3 hours

Wellhead, BOPs.
Risers.
Subsea BOP closing system.
API rules.

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Training - Wellhead Selection and Maintenance

WHMAINT-EN-P | Face-to-face only | 5 days

This course provides the required comprehensive knowledge and skills for wellhead selection, implementation procedures and maintenance

Level

Knowledge

Public

Completion, well servicing, workover or production engineers and supervisors, with client or service companies, familiar with well control and well integrity operations

Objectives

Attendees will be able to implement the following skills:

- Select the wellhead according to operational conditions
- Select the corresponding components of the wellhead
- Write and supervise maintenance and testing procedures on wellhead

Pedagogical & technical resources

- Numerous exercises
- Numerous videos and animations
- Case studies

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION: DOWNHOLE EQUIPMENT — 0.25 day

Well construction.
Casing.
Completion equipment: tubing, SCSSV, SSD, ICV...

WELLHEAD COMPONENTS — 0.5 day

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Casing head, casing spool, casing hanger, packoff flange.
Tubing head, tubing hanger, tubing head adapter.
Seals.

X-MAS TREE (SPECIFICATIONS) — 1.25 days

X-mas tree (natural flowing wells).
Gas well X-mas tree, requirement for materials.
X-mas tree equipment and selection (MV, SSV, SV, WV, choke).

WELLHEAD MONITORING & MAINTENANCE — 1.75 days

Wellhead installation procedures.
Wellhead protection during well intervention (pre-job and post job).
Surface equipment monitoring maintenance.
Function tests, pressure test.
Plan & execute maintenance. Well reinstatement.
Role and responsibilities over the various operational life of the well.

WELL INTEGRITY DURING OPERATIONS — 0.5 day

During: well start up, steady state, well intervention.
Shut-in the well and handover.

TODAY'S SUCCESSFUL TECHNICIAN — 0.5 day

HSE goal and leadership.
Role and responsibilities over the various operational life of the well.
Handover and reporting best practices.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Wireline, Slickline Operations

WLSLO-EN-D | Distance only | 5 days

This course provides the required comprehensive knowledge and skills for Wireline, slickline well intervention

Level

Knowledge

Public

All personnel involved in slickline or wireline operations, including well intervention and workover personnel

Objectives

Attendees will be able to implement the following skills:
Attendees will be able to implement the following skills:

- Understand the function of each equipment used in wireline, slickline operations,
- Select the right equipment to fit to purpose,
- Execute, supervise and ensure safety during the operations (HSE),
- Communicate effectively with other personnel involved in operations

Pedagogical & technical resources

- Participative lecturing
- Several animations & videos
- Numerous exercises.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisite for this course.

Responsable

Program

TYPES & MEANS OF INTERVENTION ON PRODUCING WELLS — 0.25 day

Main types of intervention: measurement, maintenance, workover.
Introduction to main means (wireline unit, coiled tubing unit, snubbing unit, workover rig): principles, area of application...

WIRELINE UNITS & SURFACE EQUIPEMENT — 1.25 days

Wireline operations, safety during operations.
Wireline units & surface equipment:

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- Slick line, braided line & E-line and their characteristics.
- PCE: Stuffing box, grease injection head, lubricator, WL BOPs.
- Depth indicator, weight indicator, WL Clamps...

WIRELINE, SLICKLINE TOOL STRING — 1.25 days

Wireline tool string (rope socket, stem & snicker bar, jars, knuckle joint, running tool).
Running & pulling tools.
Shifting tools.
Maintenance tools.
Fishing tools.

WIRELINE & SLICKLINE OPERATIONS — 2 days

Pressure control equipment (installation, testing & troubleshooting).
Barrier's philosophy.
RIH/POOH procedures.
Fishing procedures.
Safety during operation.
Case studies.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Wireline, Slickline Operations

WLSLO-EN-P | Face-to-face only | 5 days

This course provides the required comprehensive knowledge and skills for Wireline, slickline well intervention

Level

Knowledge

Public

All personnel involved in slickline or wireline operations, including well intervention and workover personnel

Objectives

Attendees will be able to implement the following skills:
Attendees will be able to implement the following skills:

- Understand the function of each equipment used in wireline, slickline operations,
- Select the right equipment to fit to purpose,
- Execute, supervise and ensure safety during the operations (HSE),
- Communicate effectively with other personnel involved in operations

Pedagogical & technical resources

- Participative lecturing
- Several animations & videos
- Numerous exercises.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisite for this course.

Responsable

Program

TYPES & MEANS OF INTERVENTION ON PRODUCING WELLS — 0.25 day

Main types of intervention: measurement, maintenance, workover.
Introduction to main means (wireline unit, coiled tubing unit, snubbing unit, workover rig): principles, area of application...

WIRELINE UNITS & SURFACE EQUIPEMENT — 1.25 days

Wireline operations, safety during operations.
Wireline units & surface equipment:

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- Slick line, braided line & E-line and their characteristics.
- PCE: Stuffing box, grease injection head, lubricator, WL BOPs.
- Depth indicator, weight indicator, WL Clamps...

WIRELINE, SLICKLINE TOOL STRING — 1.25 days

Wireline tool string (rope socket, stem & snicker bar, jars, knuckle joint, running tool).
Running & pulling tools.
Shifting tools.
Maintenance tools.
Fishing tools.

WIRELINE & SLICKLINE OPERATIONS — 2 days

Pressure control equipment (installation, testing & troubleshooting).
Barrier's philosophy.
RIH/POOH procedures.
Fishing procedures.
Safety during operation.
Case studies.

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 11/16/2026 to 11/20/2026	**4320 €/HT**
Pau - From 04/12/2027 to 04/16/2027	**4420 €/HT**
Pau - From 11/15/2027 to 11/19/2027	**4420 €/HT**

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Training - Advanced Well Performance

WPERF2-EN-P | Face-to-face only | 10 days

This course provides the practical, comprehensive understanding and skills needed to master well performance and make significant contributions to field productivity studies and well performance monitoring

Level

Skilled

Public

Reservoir, well performance or production engineers and technicians

Objectives

Attendees will be able to implement the following skills:

- identify all the parameters needed to the design of well performace
- select the adequate reservoir, fluid, near-wellbore zone, well completion and facilities characteristics related to well performance design
- select the remediation/stimulation and artificial lift methods
- model, forecast, assess, troubleshoot and optimize well performance

Pedagogical & technical resources

- Use of the software program PROSPER™ (training license provided for the duration of the course)
- Short lectures alternating with hands-on sessions
- Course ends with a 2-day integrated case study

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WEEK 1

INTRODUCTION TO PRODUCTION SYSTEM — **0.5 day**

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Introduction to well performance nodal analysis: inflow/outflow.
Overview of PROSPER™ software workflow:

- PROSPER™: building initial well system file.

PVT DATA/PVT MODELING — 0.5 day

Oil & Gas PVT properties: bubble point, Bo, Rs, GOR, solids...

- PROSPER™: building PVT model.

RESERVOIR PROPERTIES & RESERVOIR-WELLBORE INTERFACE — 0.5 day

Reservoir rock & fluids: porosity, permeability, saturation, relative permeability, scales.
Reservoir behavior type.
Pay zone drilling, completion (open hole, cased hole), perforating.
Wellbore treatment: sand control, stimulations (acidizing, hydraulic fracturing).

INFLOW PERFORMANCE/IPR MODELING — 1.5 days

Flow in the reservoir: Productivity Index (PI), empirical Inflow Performance Relationship (IPR).
Back pressure equation for gas wells.
Global skin: formation damage, perforation, partial penetration, deviation:

- PROSPER™: IPR modeling exercise.

Horizontal drains:

- PROSPER™: horizontal drain modeling.

WELLBORE FLOW, OUTFLOW PERFORMANCE/VLP MODELING — 1 day

Flow in the wellbore: pressure gradient and Vertical Lift Performance (VLP) curves.
GLR, tubing head pressure, tubing ID impacts.
Monophasic vs. polyphasic flow: minimum flow rate/well loading:

- PROSPER™: tubing correlations, VLP modeling.

Choke performance.

WELL PERFORMANCE — 1 day

Well deliverability nodal analysis: inflow x outflow:

- PROSPER™: IPR + VLP natural flow well performance modeling.
- Sensitivity study: prediction and analysis vs. reservoir pressure, PI, GLR, BSW, tubing ID.

WEEK 2

ARTIFICIAL LIFT — 2.5 days

Gas lift: fundamentals, unloading procedure, surveillance and troubleshooting:

- PROSPER™: gas lift design, prediction, analysis and diagnosis.

Electrical Submersible Pump (ESP): components, design, problems:

- PROSPER™: ESP design, prediction, analysis and diagnosis.

Rod pumping and jet pumps fundamentals.
Comparison of the artificial lift methods.

PROSPER™ CASE STUDY — 2 days

Application of PROSPER™ to a comprehensive case study, from PVT modeling and matching, IPR + VLP building and matching, to natural flow performance, gas lift and ESP design/performance prediction.

KNOWLEDGE ASSESSMENT — 0.5 day

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Training - Well performance engineering

WPERFE-EN-P | Face-to-face only | 60 days

This course provides in-depth technical knowledge in well performance engineering in order to hold rapidly and very effectively, the position of field engineer, design engineer, or project engineer

Level

Knowledge

Public

Engineers (particularly recently graduated engineers or engineers in conversion) looking to acquire in-depth knowledge and best practices of Oil & Gas production

Objectives

Attendees will be able to implement the following skills:

- Discuss main principles of thermodynamics applied to reservoir engineering studies
- Build a PVT model for reservoir simulation and carry out a well test interpretation
- Identify main flow regimes and define or recommend a well test design
- Explain the natural, secondary and EOR mechanisms of production of Oil & Gas reservoirs and discuss their related performance
- Perform simple material balance calculations for matching reservoir parameters/forecast recovery for a real case and consequently reserve definition
- Estimate the ultimate reservoir recovery by decline curve analysis
- Select the relevant reservoir characteristics and fluid properties related to well performance modeling
- Design artificial lift, select the adequate method and optimize well performance
- Analyze the impact of well completion and equipment on well performance, analyze the operation process

Pedagogical & technical resources

- Highly interactive training with industry specialist lecturers
- Multiple teamwork sessions and industrial case studies
- Numerous simulation exercises using corresponding software (MBAL™, PROSPER™ & GAP™)
- Knowledge assessment on a weekly basis

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the

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specific needs of learners from the professional world

Program

M01: PETROLEUM GEOLOGIE & GEOLOGICAL FIELD TRIPS — 5 days

Petroleum geology, facies rocks and their physical properties, petroleum systems, presentation & visit to petroleum system Lacq Bassin.

M02: RESERVOIR ENINEERING FUNDAMENTALS — 5 days

Reservoir characterization: rocks, fluids, logging & interpretation.
Well testing & interpretation: Darcy's law, diffusivity equation & typical flow regimes, productivity index & radius of investigation.
Reservoir Simulation: reservoir simulation models - Building the models, reservoir simulators - Black-oil, compositional, thermal, chemical, etc. Resevoir simulation workflow
Reserves definition & classification.

M03: RESERVOIR FLUID PROPERTIES - PVT — 5 days

Thermodynamics: hydrocarbon families, compositional presentation of reservoir fluids.
Thermodynamics of petroleum fluids: pure component, binary mixture, multicomponent systems. Phase behavior, hydrocarbon fluids: under saturated oil, saturated oil, dry gas, wet gas, retrograde gas. Phase envelope.
Measurements: sampling: bottom hole and surface sampling. Representativity and validity of sampling, analysis, PVT studies: oil-gas condensate, fluid modeling: PVT matching.
PVT matching with a PVT EOS package.

M04: DRIVE MECHANISMS FUNDAMENTALS — 5 days

Primary recovery: undersaturated oil expansion, solution gas drive, gas gap drive, natural water drive, analytical aquifer models. Hurst & Van Everdingen model. Carter-Tracy model, gas reservoirs with and without aquifer, material balance.
Secondary recovery: multiphase flow in the reservoir, water/immiscible gas injection. Principles, multiphase flow stability and influence of mobility ratio. Diffusive flow, sweep efficiency, water & gas injection.
Material balance: material balance equations for the various drive mechanisms "Drive Index", Practical exercises.

M05: WELL TESTING & WELL TEST ANALYSIS — 5 days

Purpose of well testing, practical well test operations: types of tests, equipment, safety and environmental issues.
Definitions and typical flow regimes: radial flow, fractured reservoirs, limited reservoirs and closed reservoirs. Productivity index, radius of investigation.
Basic equations and methods: Darcy's law and the diffusivity equation, time superposition, multirate testing, space superposition, boundary effect, pressure curves analysis, pressure derivative analysis.
Wellbore conditions, Boundary models, test design. Hands-on session...

M06: WELL COMPLETION EQUIPMENT — 5 days

Fundamentals of well design, well construction & casing program
Completion equipment & their functions (X-mas tree, THS, DHSV, Nipples, SSD, Packer...).
Several Case studies, Well Performance vs equipment selection.

M07: WELLBORE TREATMENTS — 5 days

Identification the nature and the origin of different types of damage.
Flow efficiency, cause of low productivity, location of problems and possible solutions.
Acidizing application in sandstones & carbonates reservoir: acid job design & evaluation.
Hydraulic fracturing: candidate wells, frac fluids & frac propping, design and evaluation.
Sand control: techniques & implementation.

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Water shutoff: origins & remedials.

M08: WELL PERFORMANCE & ARTIFICIAL LIFT — 15 days

Well performance design for naturally flowing well: inflow/outflow theory and practice, well completion equipment and design optimization.
Artificial Lift (AL) methods design and practice: AL methods and corresponding equipment and performance, ESP and gas lift design.
Case studies: well performance design using PROPSPER.

M09: PRODUCTION OPTIMIZATION: INTEGRATED PRODUCTION MODELING — 10 days

Case study using MBAL™, PROSPER™ & GAP™. Reservoir performance and modeling: prediction of production profile.
Global production modeling and optimization: full field optimization and forecasting approach; full field development hands-on exercise: prediction constraints.
Teamwork on an integrated project with deliverables to be presented on the last day (jury).

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Training - Well Performance

WPERF-EN-D | Distance only | 5 days

This course provides a comprehensive understanding of well lift optimization

Level

Knowledge

Public

- E&P technical staff involved in well operations
- Reservoir engineers involved in field studies with productivity and artificial lift issues
- Development engineers involved in conceptual design with well architecture and artificial lift

Objectives

Attendees will be able to implement the following skills:

- select the relevant reservoir characteristics and fluid properties related to well performance modeling
- design artificial lift and select the adequate method
- optimize well performance
- analyze the impact of well completion and equipment on well performance
- analyze the operation process

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PVT & RESERVOIR FUNDAMENTALS — 0.5 day

Oil & Gas PVT properties: bubble point, Bo, Rs, GOR, solids...
Reservoir rock and fluids: porosity, permeability, saturation, relative permeability.
Reservoir behavior types.

RESERVOIR-WELLBORE INTERFACE FUNDAMENTALS — 0.25 day

Pay zone drilling, completion (open hole, cased hole), perforating.
Wellbore treatment: sand control, stimulations (acidizing, hydraulic fracturing).

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INFLOW PERFORMANCE — 0.75 day

Flow in the reservoir: Productivity Index (PI), empirical Inflow Performance Relationship (IPR), horizontal wells.
Back pressure equation for gas wells.
Global skin: formation damage, perforation, partial penetration, deviation.
Applications - Exercises.

OUTFLOW PERFORMANCE — 0.75 day

Flow in the wellbore: pressure gradient and Vertical Lift Performance (VLP) curves.
GLR, tubing head pressure, tubing ID impact.
Monophasic vs. polyphasic flow: minimum flowrate/well loading.
Applications - Exercises.

WELL PERFORMANCE — 0.75 day

Well deliverability nodal analysis: inflow/outflow.
Well performance modeling, prediction and analysis vs. reservoir pressure, PI, GLR, BSW, tubing ID.
Applications - Exercises.

ARTIFICIAL LIFT — 1.5 days

Gas lift: fundamentals, unloading procedure, surveillance and troubleshooting.
Electrical Submersible Pump (ESP): components, design, problems.
Rod pumping and jet pumps fundamentals.
Comparison of the artificial lift methods.

INTRODUCTION TO PROSPER™ — 0.25 day

Overview of well performance software tool and methods.
PROSPER™ methodology for gas lift design and troubleshooting, manual application.
PROSPER™ methodology for ESP troubleshooting.

KNOWLEDGE ASSESSMENT — 0.25 day

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Training - Well Performance

WPERF-EN-P | Face-to-face only | 5 days

This course provides a comprehensive understanding of well lift optimization

Level

Knowledge

Public

- E&P technical staff involved in well operations
- Reservoir engineers involved in field studies with productivity and artificial lift issues
- Development engineers involved in conceptual design with well architecture and artificial lift

Objectives

Attendees will be able to implement the following skills:

- select the relevant reservoir characteristics and fluid properties related to well performance modeling
- design artificial lift and select the adequate method
- optimize well performance
- analyze the impact of well completion and equipment on well performance
- analyze the operation process

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PVT & RESERVOIR FUNDAMENTALS — 0.5 day

Oil & Gas PVT properties: bubble point, Bo, Rs, GOR, solids...
Reservoir rock and fluids: porosity, permeability, saturation, relative permeability.
Reservoir behavior types.

RESERVOIR-WELLBORE INTERFACE FUNDAMENTALS — 0.25 day

Pay zone drilling, completion (open hole, cased hole), perforating.
Wellbore treatment: sand control, stimulations (acidizing, hydraulic fracturing).

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INFLOW PERFORMANCE — 0.75 day

Flow in the reservoir: Productivity Index (PI), empirical Inflow Performance Relationship (IPR), horizontal wells.
Back pressure equation for gas wells.
Global skin: formation damage, perforation, partial penetration, deviation.
Applications - Exercises.

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GLR, tubing head pressure, tubing ID impact.
Monophasic vs. polyphasic flow: minimum flowrate/well loading.
Applications - Exercises.

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Well deliverability nodal analysis: inflow/outflow.
Well performance modeling, prediction and analysis vs. reservoir pressure, PI, GLR, BSW, tubing ID.
Applications - Exercises.

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Gas lift: fundamentals, unloading procedure, surveillance and troubleshooting.
Electrical Submersible Pump (ESP): components, design, problems.
Rod pumping and jet pumps fundamentals.
Comparison of the artificial lift methods.

INTRODUCTION TO PROSPER™ — 0.25 day

Overview of well performance software tool and methods.
PROSPER™ methodology for gas lift design and troubleshooting, manual application.
PROSPER™ methodology for ESP troubleshooting.

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 10/19/2026 to 10/23/2026	**4320 €/HT**
Pau - From 10/18/2027 to 10/22/2027	**4420 €/HT**

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Training - Well Production Integrity

WPINT-EN-D | Distance only | 2 days

This course provides skills in well integrity concepts: “how to keep hydrocarbons in the pipe” by designing, operating and maintaining well equipment to ensure safe containment of all wellbore fluids over the lifetime of a well

Level
Skilled

Public
Drilling, completion and production engineers and technicians

Objectives
Attendees will be able to implement the following skills:

- Recognize the importance and the concepts of well integrity
- Assess the link between well integrity and other key strategic operations

Pedagogical & technical resources

- Videos and animations showing how equipment work
- Practical exercises and knowledge assessment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL INTEGRITY DESIGN — 0.25 day

Well construction/completion: casing, tubing, cement, produced fluids.
Wellhead and tree equipment: valves, seals, accessories.
Safety valves: downhole, surface.

WELL INTEGRITY OPERATIONS — 0.25 day

Monitoring and managing pressure.
Flow assurance: corrosion, sand, deposits.
Testing and maintenance: valves, accessories.

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OPERATIONS: YOUR ROLE — 0.25 day

Monitor well equipment.
Perform well equipment tests.
Ensure safety equipment is operational.
Remember you are the first line of defense against well integrity failures.

WELL INTEGRITY MAINTENANCE — 0.25 day

All well equipment:

- Valves.
- Safety equipment.
- Seals.

Preparation and reinstatement.

MAINTENANCE: YOUR ROLE — 0.25 day

Perform maintenance tasks as assigned by location.
Prepare the well for maintenance and well intervention activities.
Reinstate the well after maintenance and well intervention activities.

INTEGRITY MANAGEMENT — 0.25 day

Operations on the wellstock.
Develop a more complete understanding of the well below the surface.
Understand the independence of all well components.

TODAY'S SUCCESSFUL PRODUCTION TECHNICIAN — 0.25 day

HSE goals.
Design decisions made for the well and the relevance of those decisions to their operations.
Ways that all surface and subsurface well components work together.
Instruments: how the downhole conditions are reflected in the surface.
Handovers: strict adherence to site-specific procedures and/or practices.
Risks: daily tasks that bring increased risks to well integrity and proactive mitigation of those risks.
Problems: deeper knowledge of the well to anticipate problems turn into large scale well integrity incidents.

KNOWLEDGE ASSESSMENT (WORKSHOP) — 0.25 day

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Training - Well Production Integrity

WPINT-EN-P | Face-to-face only | 2 days

This course provides skills in well integrity concepts: “how to keep hydrocarbons in the pipe” by designing, operating and maintaining well equipment to ensure safe containment of all wellbore fluids over the lifetime of a well

Level

Skilled

Public

Drilling, completion and production engineers and technicians

Objectives

Attendees will be able to implement the following skills:

- Recognize the importance and the concepts of well integrity
- Assess the link between well integrity and other key strategic operations

Pedagogical & technical resources

- Videos and animations showing how equipment work
- Practical exercises and knowledge assessment

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

WELL INTEGRITY DESIGN — 0.25 day

Well construction/completion: casing, tubing, cement, produced fluids.
Wellhead and tree equipment: valves, seals, accessories.
Safety valves: downhole, surface.

WELL INTEGRITY OPERATIONS — 0.25 day

Monitoring and managing pressure.
Flow assurance: corrosion, sand, deposits.
Testing and maintenance: valves, accessories.

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OPERATIONS: YOUR ROLE — 0.25 day

Monitor well equipment.
Perform well equipment tests.
Ensure safety equipment is operational.
Remember you are the first line of defense against well integrity failures.

WELL INTEGRITY MAINTENANCE — 0.25 day

All well equipment:

- Valves.
- Safety equipment.
- Seals.

Preparation and reinstatement.

MAINTENANCE: YOUR ROLE — 0.25 day

Perform maintenance tasks as assigned by location.
Prepare the well for maintenance and well intervention activities.
Reinstate the well after maintenance and well intervention activities.

INTEGRITY MANAGEMENT — 0.25 day

Operations on the wellstock.
Develop a more complete understanding of the well below the surface.
Understand the independence of all well components.

TODAY'S SUCCESSFUL PRODUCTION TECHNICIAN — 0.25 day

HSE goals.
Design decisions made for the well and the relevance of those decisions to their operations.
Ways that all surface and subsurface well components work together.
Instruments: how the downhole conditions are reflected in the surface.
Handovers: strict adherence to site-specific procedures and/or practices.
Risks: daily tasks that bring increased risks to well integrity and proactive mitigation of those risks.
Problems: deeper knowledge of the well to anticipate problems turn into large scale well integrity incidents.

KNOWLEDGE ASSESSMENT (WORKSHOP) — 0.25 day

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Training - Wellsite Geology

WSGEOL-EN-P | Face-to-face only | 5 days

This program aims to understand drilling operations, oversee mud logging and well logging, while ensuring wellsite geologist tasks

Level

Awareness

Public

- Geologists involved with geological wellsite control and/or supervision
- Geoscientists using well geological reports
- Operations geologist aiming to gain a comprehensive understanding of the wellsite geology

Objectives

Attendees will be able to implement the following skills:

- Grasp various techniques applied in well-site geology.
- Learn about the various aspects of geological logging.
- Insight of wellbore equilibrium.
- Understand well-site geologist's role, tasks and responsibilities

Pedagogical & technical resources

Interactive presentations and exercises accompanied by the instructor.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Degree in geology.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DRILLING — 0.75 day

Rotary drilling equipment: rigs, bits, pipes
Operations: organization, phases, drilling, tripping, directional drilling
Mud: types, properties
Well control: preventing blow-outs, mechanical issues, gas safety
Basics of Coring

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MUD LOGGING — 1.25 days

Introduction: tasks, equipment, organization
Mechanical parameters: depth, weight, rotation
Hydraulic parameters: pressures and flow, volumes, mud properties
Geological parameters: lag time, sampling, analysis of cuttings
Gas logging: gas properties, sampling, analysis, non-hydrocarbons gases

PORE PRESSURE, WELL EQUILIBRIUM — 0.5 day

Basics of Pore pressure: introduction, evaluation
Basics of Well equilibrium: gains and losses, gas shows

WELL LOGGING — 1 day

Equipment: Setup, main logging tools, QC
Basic of log interpretation: identification of rocks and reservoirs, fluid contacts
MWD/LWD: surveys, tools
Basics of Geo-steering
Basics of Cased hole log
Basics of TCP-Wireline perforation

WELLSITE GEOLOGY — 1.5 days

Introduction: duties and responsibilities, sources of information
Geological observations: cuttings description, oil and gas shows
Geological logging: location, geological logs, reporting
Operations geologist oversees and interactions during drilling operations

Sessions

Rueil-Malmaison - From 10/12/2026 to 10/16/2026 — **3650 €/HT**

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Training - Well Servicing and Workover

WSWO-EN-P | Face-to-face only | 5 days

This course provides the required comprehensive knowledge and skills for well servicing and workover

Level

Knowledge

Public

Completion, well servicing or workover engineers and supervisors, with client or service companies, familiar with well control operations

Objectives

Attendees will be able to implement the following skills:

- Select the right means for well intervention
- Design well servicing or workover programs
- Supervise well servicing or workover operations

Pedagogical & technical resources

Two case studies are worked out: one for well servicing, the other for workover

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

TYPES & MEANS OF INTERVENTION ON PRODUCING WELLS — 0.5 day

Mains types of intervention: measurement, maintenance, workover.
Introduction to main means (wireline unit, coiled tubing unit, snubbing unit, workover rig): principles, area of application.

GENERAL PROCEDURE OF A WORKOVER — 0.5 day

Main operation steps: chronology, more tricky operations from a safety point of view, main operations.
Case of depleted reservoirs: losses and formation damage, kick-off after the workover.

WELL KILLING PROCEDURE FOR A PRODUCING WELL — 1.25 days

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Killing the well by circulation: area of application, basis procedures (direct or reverse circulation), elaboration of the forward-looking pumping diagram.
Killing by squeeze: area of application, basis procedure, elaboration of the operating program, case where the injectivity test is unsatisfactory, squeeze and bleed-off method.
Final killing phase: observing the well, operations to run after packer “unsetting”.

WELL OPERATIONS ON PRODUCING WELLS — 2 days

Wireline operations: principle and area of application, surface equipment, wireline tool string, WL tools, fishing tools, safety during operations.
Coiled tubing operations: principle and area of application, surface equipment, CT downhole equipment, CT safety and operating considerations.

CASE STUDY: WORKOVER PROGRAM — 0.5 day

KNOWLEDGE ASSESSMENT — 0.25 day

Sessions

Pau - From 10/12/2026 to 10/16/2026	**4320 €/HT**
Pau - From 10/11/2027 to 10/15/2027	**4420 €/HT**

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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Training - Well Testing and Well Test Analysis

WTA-EN-P | Face-to-face only | 5 days

This course provides a comprehensive and practical understanding about performing set-up, design and analysis of well tests

Level
Skilled

Public
Newly-hired and 2- to 3-year experienced reservoir engineers willing to deepen their knowledge in well test analysis; geoscientists, petroleum engineers and production engineers moving towards reservoir engineering

Objectives
Attendees will be able to implement the following skills:

- Discuss the theory of well test analysis
- Identify main flow regimes and models
- Carry out simple well test analysis
- Define or recommend a well test design

Pedagogical & technical resources

- Interactive lectures and exercises
- Hands-on practice based on synthetic and real data using hand and spreadsheet calculations and SAPHIR™ dedicated industrial software
- Software used during workshops: with courtesy of Kappa Engineering

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO WELL TESTING, BASIC EQUATIONS & METHODS — 1 day

Objective of well testing.
Practical well test operations: types of tests, equipment, safety and environmental issues.
Definitions and typical flow regimes: radial flow, fractured reservoirs, limited reservoirs and closed reservoirs.

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Productivity Index (PI), radius of investigation.
Darcy's law and the diffusivity equation.
Time superposition, multirate testing.
Space superposition, boundary effect.
Pressure curves analysis.
Pressure derivative curves analysis.

WELLBORE CONDITIONS — 0.5 day

Wellbore storage and skin effects.
Infinite and finite conductivity vertical fracture.
Well in partial penetration.
Horizontal well.
Skin factors, geometrical skin and well deliverability.

RESERVOIR HETEROGENEITIES — 1 day

Double porosity models: pseudo-steady state and transient state models.
Double permeability models.
Composite reservoir models.

BOUNDARY MODELS — 1 day

One sealing fault model.
Two parallel sealing faults model/two intersecting sealing faults model.
Closed system model and reservoir limits testing.
Constant pressure boundary model.

TEST DESIGN - HANDS-ON SESSION — 1 day

Rate history definition.
Time and pressure error.
Interpretation procedure.
From the initial diagnosis to the final consistency check of the results.
Reporting and presentation of results.
Examples of test response.

GAS WELLS: REVIEW & APPLICATIONS — 0.5 day

Hypothesis for gas wells testing. Darcy and non-Darcy flow.
Pseudo-pressure and inertial effects.
Gas wells deliverability:

- Absolute open flow potential.
- Houpert method.
- Back pressure tests. Isochronal tests. Modified isochronal tests.

Sessions

Rueil-Malmaison - From 10/12/2026 to 10/16/2026 — **3790 €/HT**

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