## Overview

### LEVEL
Proficiency

### PURPOSE
This course provides a thorough, practical knowledge of openhole logging, mud logging and coring while drilling.

### LEARNING OBJECTIVES
Upon completion of the course, participants will be able to:
- 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.

### WAYS AND MEANS
Application to a real case (project) for the participants in the “Drilling & Completion Engineering” training course.
- Case studies.
- Group work.
- Numerous illustrations and videos.

### LEARNING ASSESSMENT
Quiz.

### PREREQUISITES
No prerequisites for this course.

## Agenda

### MUD LOGGING
2 d
- Tasks of various professionals at the drilling site.
- Main documents carried out.
- Mechanical parameters (WOH, WOB, RPM, Torque, ROP) & hydraulic parameters (SPP, Flows, Pits and mud characteristics). Physical principles of sensors used on well site.
- Cuttings (sampling, cleaning and analysis).
- Detection and evaluation of Oil & Gas shows while drilling.
- Carry out a section of geological log.
- Case studies.

### CORING OPERATIONS
0.5 d
- 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.
Side wall coring.
Storage and handling process for cores during surface recovery: cores cutting, preliminary well site analysis, storing of cores.

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.

KNOWLEDGE ASSESSMENT