

This course can be adapted to virtual classroom mode

Systems Engineering

3 days
Overview

INSYST-EN-A

LEVEL

Knowledge

PURPOSE

This course provides a deeper knowledge and competencies on processes and methodologies of systems engineering and an overview of powertrain project management.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:
master the basic notions of systems engineering,
understand specificities of systems engineering in a powertrain project,
know the tools, processes and methodologies required to develop a new powertrain.

Agenda

FUNDAMENTALS OF SYSTEMS ENGINEERING

0.5 d

History of Systems Engineering.
System definition.
Life cycle.
Engineering system.
Engineering system in automotive industry.
Processes and objects (product, process, service).
V cycle: engineering (specify, design), physical parts, integration (integrate, validate, justify).
Other methods of product development.

TREE DECOMPOSITION OF A NEW SYSTEM

0.5 d

A system tree.
Product development tree and decomposition by levels.
Development process tree.
Associated systems.
Design by steps/rank of maturity.
Simultaneous development of the product and the process.

ENGINEERING PROCESS

1 d

Define the need.
Specify: define the requirements (technical specification).
Design from a functional and organic point of view a new system to meet the requirements: internal functional analysis, external functional analysis, FMEA, functional architectures, organic architectures and interfaces.
Evaluation and optimization.
Integration and validation.

PROJECT MANAGEMENT PROCESS

0.5 d

Product and process planning.

Steering and control of deadlines.

Steering and control of costs.

Steering and control of quality.

Steering and control of risks.

Requirements management: process from the need for the client to the requirement.

Configuration management.

Diversity management.

APPLICATION ON A CASE STUDY

0.5 d