

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

Responsible

IFP Training 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.

“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

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