

€ TRAINING

Structural Steel Design For Oil and Gas
Industry





Structural Steel Design For Oil and Gas Industry

Introduction:

This training program equips participants with the knowledge and skills necessary to design structural steel components for oil and gas facilities. It focuses on optimizing structural integrity and safety while meeting the specific requirements of oil and gas infrastructure.

Program Objectives:

At the end of this program, participants will be able to:

- Explore the materials of construction utilized in oil, gas, and water fields.
- Understand corrosion theories and mechanisms relevant to these industries.
- Identify typical types of corrosion associated with oil, gas, and water fields.
- Learn about corrosion monitoring and inspection methods.

Targeted Audience:

- Petroleum Engineers, Welding Engineers, Process Engineers.
- Inspectors and Inspection Supervisors.
- Equipment Engineers, Design Engineers.
- Maintenance Engineers and Planners.
- Service Company Representatives.

Program Outlines:

Unit 1:

Construction Material Grades and Principles of Corrosion Engineering:

- Metallurgy and Engineering material properties.
- Materials testing destructive testing.
- Material identification according to API 5L and ASME code.
- Economic impacts of corrosion.

- Theory of corrosion.
- Corrosion rates and ways of measurements.

Unit 2:

Types of Corrosion:

- Galvanic corrosion.
- Localized / pitting corrosion.
- Corrosion exposed to stray currents.
- Soil corrosion.
- Crevice corrosion.
- Microbiologically Induced Corrosion MIC.

Unit 3:

Types of Corrosion Continued:

- Wet hydrogen sulfide H₂S corrosion mechanisms.
- Corrosion Under Insulation CUI.
- Corrosion Under Supports CUS.
- Flow assisted corrosion Erosion Corrosion.
- Cl stress corrosion cracking.
- Intergranular corrosion.

Unit 4:

Corrosion Control in Oil, Gas & Water Fields:

- Protection by changing design.
- Active Cathodic protection Sacrifice anode.
- Cathodic protection Impressed Current.
- Passive Protection Coating.
- Types of protection paints.

- Inhibitors.

Unit 5:

Corrosion Monitoring in Oil, Gas & Water Fields:

- Thickness measurements using ultrasonic testing.
- Radiographic examination.
- Corrosion coupons.
- Electrical probes.
- Intelligent pigs.
- Risk-Based Inspection RBI.