



*Training Course:
Strategic Welding Engineering for Industrial
Excellence*

10 - 14 August 2025

Cairo (Egypt)

Holiday Inn & Suites Cairo Maadi, an IHG Hotel

Training Course: Strategic Welding Engineering for Industrial Excellence

Training Course code: EN236136 From: 10 - 14 August 2025 Venue: Cairo (Egypt) - Holiday Inn & Suites Cairo Maadi, an IHG Hotel Training Course Fees: 4200 € Euro

Introduction

Welding Engineering plays a vital role in ensuring the integrity, safety, and reliability of industrial structures and products. As industries continue to innovate and evolve, the demand for high-quality welding practices and standards becomes essential to meet safety regulations, reduce operational risks, and improve production efficiency.

This 5-day training program is designed to provide engineers, supervisors, and technical professionals with a comprehensive understanding of welding engineering principles, codes, materials behavior, and quality control methods. Through interactive sessions and real-world case studies, participants will gain the knowledge and tools required to implement efficient and safe welding practices across industrial environments.

Course Objectives

By the end of this training, participants will be able to:

- Understand the fundamentals of welding processes and welding metallurgy.
- Apply key welding codes, standards, and procedures in industrial projects.
- Select suitable materials and welding techniques based on application requirements.
- Evaluate weld quality using inspection and testing methods.
- Identify and mitigate welding defects and failure risks.

Target Audience

This program is ideal for engineers, supervisors, and technical professionals involved in welding operations, design, inspection, and quality assurance, including:

- Welding Engineers and Technicians.
- Maintenance and Mechanical Engineers.
- Quality Control and Inspection Personnel.
- Fabrication Supervisors and Project Engineers.

- HSE and Technical Auditors involved in welding-related activities.

Outlines

Day 1: Fundamentals of Welding Engineering

- Overview of welding engineering and industrial applications.
- Types of welding processes: SMAW, GTAW, GMAW, FCAW, SAW.
- Basic welding equipment, consumables, and setup.
- Welding positions, joint designs, and symbols.
- Safety in welding operations.

Day 2: Welding Metallurgy and Material Selection

- Heat effects on metals and weld zones.
- Weldability of carbon steels, stainless steels, and alloys.
- Preheating, post-weld heat treatment PWHT, and their importance.
- Material selection criteria for different service conditions.
- Corrosion, cracking, and metallurgical failures.

Day 3: Welding Procedures, Codes & Standards

- Welding Procedure Specification WPS and Procedure Qualification Record PQR.
- Key standards: ASME, AWS, ISO, API codes.
- Welding qualification and certification processes.
- Welding documentation and traceability.
- Practical workshop: Reviewing and developing WPS/PQR.

Day 4: Weld Quality Control and Inspection Techniques

- Weld inspection techniques: visual, radiographic, ultrasonic, magnetic particle, dye penetrant.
- Acceptance criteria for different defects.

- Non-destructive testing NDT principles and selection.
- Weld repair strategies and rework procedures.
- Case study: Investigating weld failure in pipelines.

Day 5: Welding Challenges, Risk Mitigation & Innovation

- Common welding defects and root causes.
- Welding in hazardous or critical environments offshore, pressure vessels, etc..
- Welding automation and robotics in modern industry.
- Risk analysis, safety protocols, and best practices.
- Future trends in welding engineering and smart welding solutions.

Registration form on the Training Course: Strategic Welding Engineering for Industrial Excellence

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