

OIL STORAGE TANKS - MECHANICAL & STRUCTURAL INTEGRITY

“Ensure Storage Tank Safety, Reliability, and Compliance with Global Integrity Standards”

Schedule

Venue (InHouse)	Fees
At Your Organization Premises	Ask For The Quotation

► **Available delivery methods:** Face-to-Face & Online Training, In-House Training

Introduction

Oil storage tanks play a critical role in energy infrastructure, and maintaining their mechanical and structural integrity is essential to prevent environmental hazards, operational disruptions, and safety incidents. This course offers comprehensive training on the design, inspection, maintenance, and repair of above-ground storage tanks (ASTs) in compliance with industry codes such as API 650, API 653, and EEMUA 159. Participants will gain the practical knowledge needed to assess risks, implement best practices, and ensure the long-term performance of tank assets.

Objectives

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

- Understand the fundamentals of oil storage tank design and construction
- Apply international standards for inspection, maintenance, and repair
- Identify common degradation mechanisms and failure modes
- Plan and implement effective integrity management programs
- Ensure compliance with HSE regulations and audit readiness

Why Attend

- Gain in-depth knowledge of tank construction, materials, and weld inspection
- Minimize unplanned downtime, leaks, and environmental exposure
- Improve safety and reliability through proactive maintenance
- Build capability for tank assessment, fitness-for-service, and remediation

Target Audience

- Mechanical, civil, and structural engineers
- Maintenance and inspection engineers
- Asset integrity professionals
- Tank farm operators and storage facility managers
- HSE and compliance officers
- NDT and QA/QC inspectors

Individual Benefits

- Develop technical competence in tank inspection and evaluation
- Learn how to interpret inspection results and recommend actions
- Gain confidence in dealing with tank contractors and service providers
- Improve career opportunities in oil & gas, petrochemical, and storage sectors

Organizational Benefits

- Enhance storage asset performance and reduce environmental risk
- Meet global regulatory and safety standards with confidence
- Reduce costs through optimized inspection and maintenance cycles
- Improve tank design review and failure prevention practices

Instructional Methodology

- Illustrated presentations with engineering diagrams and failure case photos
- Hands-on exercises and real-life case studies
- Discussion of field inspection reports and tank audits
- Group analysis of corrosion, settlement, and cracking scenarios
- Practical tools for implementing tank integrity programs

Course Outline

DETAILED 5-DAY COURSE OUTLINE (Customizable) Training Hours: 07:30 AM – 03:30 PM Daily Format: 3–4 Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1 - Introduction & Design Standards

- Module 1 (07:30 – 09:30): Overview of Storage Tank Types and Applications
- Module 2 (09:45 – 11:15): Design Codes and Standards: API 650, API 620, EEMUA 159
- Module 3 (11:30 – 01:00): Tank Components: Shells, Roofs, Bottoms, Nozzles

Day 2 - Materials, Fabrication, and Construction Quality

- Module 4 (07:30 – 09:30): Material Selection, Corrosion Allowance, and Welding
- Module 5 (09:45 – 11:15): Tank Construction Techniques and QA/QC Requirements
- Module 6 (11:30 – 01:00): Common Defects During and After Construction

Day 3 - Inspection & Integrity Assessment

- Module 7 (07:30 – 09:30): API 653 In-Service Inspection Requirements
- Module 8 (09:45 – 11:15): NDT Methods: UT, MFL, Radiography, and Visual
- Module 9 (11:30 – 01:00): Fitness-for-Service (FFS) Evaluations and Remaining Life

Day 4 - Repairs, Maintenance & Risk-Based Planning

- Module 10 (07:30 – 09:30): Tank Repairs and Alteration Requirements
- Module 11 (09:45 – 11:15): Corrosion Management and Coating Systems
- Module 12 (11:30 – 01:00): Risk-Based Inspection and Maintenance Planning

Day 5 - Structural Considerations, Failures & Case Studies

- Module 13 (07:30 – 09:30): Structural Integrity, Seismic Loading & Settlement
- Module 14 (09:45 – 11:15): Tank Failures: Root Causes and Prevention
- Module 15 (11:30 – 01:00): Integrity Management System Implementation & Final Review

Certification

Participants will be awarded a Certificate of Completion in Oil Storage Tanks – Mechanical & Structural Integrity, validating their knowledge in tank inspection, maintenance, and compliance strategies.

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