MERCURY

Storage Tank Design, Construction, and Maintenance

15 – 19 August 2027
Amman (Jordan)



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Ref: 16014_1067905 **Date:** 15 – 19 August 2027 **Location:** Amman (Jordan) **Fees:** 4200 Euro

Introduction:

Storage tanks are pivotal in industries like oil, gas, and chemicals, providing safe and efficient storage solutions for various liquids and gases. These tanks are essential for storing crude oil, refined products, chemicals, and more, often operating under extreme conditions. This Storage Tank Design, Construction, and Maintenance training course equips professionals with the knowledge to effectively design, construct, and maintain these vital structures.

Participants will explore the core principles of tank design, focusing on material selection, structural integrity, and compliance with engineering standards. The Storage Tank Design, Construction, and Maintenance course dives deep into construction methodologies, welding techniques, and strategies to prevent corrosion and ensure the longevity of storage tanks. Maintenance practices such as inspection, repair, and safety protocols are covered comprehensively.

Participants will familiarize themselves with international codes and standards for managing storage tank operations. Additionally, the Storage Tank Design, Construction, and Maintenance program aims to enhance participants' ability to identify risks and optimize tank performance while ensuring safety and regulatory compliance. This training is specifically designed for those in the oil and gas sector and offers an in-depth exploration of storage tank management practices.

Targeted Groups:

This Storage Tank Design, Construction, and Maintenance training course targets professionals seeking specialized knowledge and skills:

- Engineers and project managers in the oil and gas industry.
- Facility operators are responsible for tank management and maintenance.
- HSE professionals oversee safety compliance.
- Inspection and quality control personnel.
- Regulatory officers ensure adherence to industry standards.
- Contractors and consultants are involved in tank projects.
- Professionals aiming to enhance their expertise in storage tank operations.

Targeted Competencies:

Participants will gain the following competencies during the Storage Tank Design, Construction, and Maintenance training program:

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- Understand storage tank design principles and material selection.
- Learn about expertise in interpreting engineering codes and regulatory standards.
- Explain proficiency in welding and construction techniques for tank fabrication.
- Advanced knowledge of corrosion control methods and protective coatings.
- Learn the ability to conduct inspections and execute detailed maintenance plans.
- Competence in risk assessment and ensuring safety compliance in tank operations.
- Skills to mitigate environmental impacts and prevent spills.
- Technical proficiency in troubleshooting defects and optimizing tank performance.

Course Objectives:

Participants will achieve the following objectives by completing the Storage Tank Design, Construction, and Maintenance course:

- Understand fundamental principles of storage tank design and construction.
- Identify key engineering standards and regulatory requirements within the oil and gas sector.
- Demonstrate proficiency in material selection and structural integrity for tank construction.
- Evaluate various types of storage tanks and their applications in industrial settings.
- Analyze common construction challenges and apply effective solutions.
- Implement industry best practices to prevent corrosion and apply protective coatings.
- Develop and implement maintenance strategies to extend tank lifespan.
- Conduct thorough risk assessments for operational safety and regulatory compliance.
- Perform inspections and troubleshoot common storage tank defects.
- Assess environmental impacts and apply measures to reduce operational risks.
- Utilize digital tools for effective monitoring and performance optimization.
- Enhance emergency response and spill prevention strategies.

Course Content:

Unit 1: Fundamentals of Storage Tank Design:

- Overview of storage tank functions and classifications.
- Key design considerations based on industrial needs.
- Engineering standards and compliance requirements.
- Material selection to ensure durability and resistance to corrosion.
- Structural integrity, load-bearing calculations, and stress analysis.
- Explore environmental and operational factors that influence tank design.
- Incorporating fire protection and safety measures in tank designs.
- Seismic considerations and their impact on tank design.
- Use of advanced software tools for design and modeling.

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Unit 2: Storage Tank Construction Methods:

- Overview of tank construction types: welded, bolted, and riveted.
- Step-by-step construction processes for each tank type.
- Foundation and structural support requirements for tanks.
- Welding techniques, quality control, and fabrication standards.
- Importance of corrosion prevention during the construction phase.
- Installation of safety systems during the construction process.
- Testing and certification procedures for newly constructed tanks.
- Compliance with international construction standards and practices.
- Post-construction inspection and testing to ensure integrity.
- Techniques for troubleshooting during construction.
- Project management skills for overseeing tank construction.
- Best practices for managing construction timelines and budgets.

Unit 3: Maintenance Strategies and Inspection Techniques:

- Importance of proactive maintenance for storage tank longevity.
- Common failures in tanks and their root causes.
- Visual, ultrasonic, and leak detection inspection methods.
- Conducting repairs and refurbishment for damaged tanks.
- Tank cleaning procedures and ensuring confined space safety.
- Introduction to predictive maintenance with digital monitoring tools.
- Regulatory compliance in tank maintenance activities.
- Best practices for creating a maintenance schedule and following up on tasks.
- Identifying early signs of wear and tear in storage tanks.
- Emergency protocols for maintenance issues.
- Overview of life-cycle cost analysis for tank maintenance.
- Recordkeeping and documentation practices for maintenance activities.

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Unit 4: Corrosion Control and Protective Coatings:

- Understanding corrosion mechanisms in storage tanks.
- Selection of appropriate coating materials for tank protection.
- Application techniques for protective coatings.
- Cathodic protection systems and their role in corrosion control.
- Factors influencing coating reapplication schedules.
- Use of environmental data to inform corrosion control strategies.
- Overview of corrosion monitoring techniques and technologies.
- Industry regulations for corrosion management.
- Case studies of effective corrosion mitigation strategies.
- Impact of environmental factors like temperature and humidity on corrosion.
- Training staff in corrosion detection and preventative measures.
- Environmental compliance and regulatory guidelines on corrosion control.

Unit 5: Safety and Environmental Considerations in Storage Tank Operations:

- Identifying hazards and conducting risk assessments.
- Developing emergency response and spill containment plans.
- Fire safety measures and explosion prevention in tank operations.
- Environmental impacts of tank operations and pollution control measures.
- Regulatory standards for environmental safety in tank operations.
- Training and promoting a safety culture within storage facilities.
- Case studies on incidents and the lessons learned from tank failures.
- Handling of hazardous materials and emergency spills.
- Safety equipment for workers in tank operations.
- Impact of tank operations on surrounding ecosystems and mitigation strategies.
- Strategies for improving tank security against sabotage and theft.
- Continuous improvement approaches for tank safety and operations.

Final Insights & Key Takeaways:

Storage tanks are essential in various industries and require precise design, construction, and maintenance. This Storage Tank Design, Construction, and Maintenance course offers comprehensive knowledge on ensuring tank longevity and performance.

Professionals can improve tank operations and safety by applying best practices and complying with regulations. The Storage Tank Design, Construction, and Maintenance program enhances participants' ability to manage risks and optimize storage tank efficiency.