MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

Phone: +601116373203 | **Email:** info@mawaevents.net

INTERNAL & EXTERNAL FLOATING ROOF TANKS

"Design, Operation, Maintenance, and Safety of Floating Roof Storage Tanks in the Oil & Gas Industry"

Schedule

Date	Venue	Fees (Face-to-Face)
06 – 10 Dec 2026	Doha, Qatar	USD 3495 per delegate

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

Introduction

Floating roof tanks (FRTs) are widely used in the oil, gas, and petrochemical industries for the storage of volatile liquids such as crude oil and refined products. Their unique design minimizes vapor losses and environmental emissions, but also presents operational, maintenance, and safety challenges that must be expertly managed.

This comprehensive 5-day course offers in-depth technical training on the design, operation, inspection, maintenance, and risk management of both internal and external floating roof tanks. Participants will gain practical insights into applicable standards (API 650, API 653), tank integrity, vapor control systems, sealing mechanisms, and incident prevention techniques.

Objectives

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

- Understand the design principles and functional components of FRTs
- Differentiate between internal and external floating roof configurations and applications
- Apply inspection and maintenance strategies in accordance with API standards
- Identify common failure modes and implement preventive maintenance practices
- Enhance operational safety and environmental compliance of storage tanks

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Why Attend

- Gain a strong technical foundation in floating roof tank design and operation
- Apply practical inspection, monitoring, and repair techniques to maintain tank integrity
- Reduce vapor emissions, product losses, and fire risks through proactive controls
- Ensure compliance with API codes and environmental regulations
- Learn from real-life failure investigations and case studies

Target Audience

This program is designed for:

- Mechanical and maintenance engineers
- Tank farm and terminal operators
- Inspection, HSE, and asset integrity professionals
- Tank designers, contractors, and consultants
- Operations and project engineers in the oil, gas, and chemical sectors

Individual Benefits

Key competencies that will be developed include:

- Interpretation of API 650 and API 653 design and maintenance requirements
- Evaluation of sealing systems and vapor control technologies
- Failure detection and troubleshooting of tank-related issues
- Inspection planning and documentation practices
- Improved understanding of floating roof tank safety protocols

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Reduced risk of tank overfill, leaks, and emissions incidents
- Improved tank asset reliability and lifecycle management
- Better adherence to compliance and regulatory inspection schedules
- Enhanced incident prevention and emergency preparedness
- Increased operational efficiency and product conservation

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – Codes, standards, and FRT structural fundamentals
- Case Studies – Analysis of tank failures, design flaws, and operational issues
- Workshops – Seal inspection, emission control planning, and API checklist exercises
- Peer Exchange – Discussions on field experiences and lessons learned
- Tools – Sample inspection forms, failure analysis templates, and maintenance schedules

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Course Outline

Detailed 5-Day Course Outline

Training Hours: 7:30 AM – 3:30 PM **Daily Format:** 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Introduction to Floating Roof Tanks

- Module 1: Overview of Storage Tank Types and Functions (07:30 – 09:30) • FRTs vs fixed roof tanks; advantages and limitations
- Module 2: Design Concepts of Internal vs External FRTs (09:45 – 11:15) • Floating deck structures, seal types, and materials
- Module 3: Workshop – Tank Identification and Component Analysis (11:30 – 01:00) • Review drawings and real-world tank configurations
- Module 4: Peer Exchange – Industry Use Cases and Tank Selection (02:00 – 03:30) • Discuss various tank applications across facilities

Day 2: Codes, Standards, and Integrity Requirements

- Module 5: API 650 and API 653 Requirements (07:30 – 09:30) • Design, construction, and repair standards
- Module 6: Inspection Intervals and Compliance Planning (09:45 – 11:15) • Inspection levels, frequencies, and recordkeeping
- Module 7: Workshop – API Checklist Completion (11:30 – 01:00) • Simulate an inspection using real guidelines
- Module 8: Case Study – Tank Failure Due to Improper Maintenance (02:00 – 03:30) • Learn from a documented incident

Day 3: Vapor Loss Control and Seal Systems

- Module 9: Types and Functions of Seal Systems (07:30 – 09:30) • Primary and secondary seals, emissions reduction
- Module 10: Vapor Emissions and Environmental Control (09:45 – 11:15) • Regulatory standards, detection, and mitigation
- Module 11: Workshop – Evaluate Seal Integrity and Selection (11:30 – 01:00) • Seal inspection scenarios and defect detection
- Module 12: Peer Exchange – Emissions Challenges and Solutions (02:00 – 03:30) • Field practices and innovations

Day 4: Maintenance Planning and Risk Management

- Module 13: Common FRT Maintenance Issues (07:30 – 09:30) • Corrosion, sticking decks, drain system problems
- Module 14: Maintenance Strategies and Best Practices (09:45 – 11:15) • Preventive vs corrective maintenance plans
- Module 15: Workshop – Maintenance Plan Development (11:30 – 01:00) • Draft an annual maintenance schedule
- Module 16: Case Study – Avoiding Costly Repairs Through Early Intervention (02:00 – 03:30) • Lifecycle cost analysis

Day 5: Safety, Incident Prevention, and Course Wrap-Up

- Module 17: Safety Hazards and Control Measures (07:30 – 09:30) • Fire risks, floating roof collapse, ingress risks
- Module 18: Emergency Preparedness and Contingency Planning (09:45 – 11:15) • Spill control, venting, firefighting integration
- Module 19: Final Project – Floating Roof Tank Compliance Audit (11:30 – 01:00) • Present a mock tank audit plan
- Module 20: Wrap-Up, Feedback, and Certification (02:00 – 03:30) • Q&A, summary, and course conclusion

Certification

Participants will receive a Certificate of Completion in Internal & External Floating Roof Tanks, validating their technical competency in the design, operation, inspection, and maintenance of floating roof storage tanks in accordance with industry standards.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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