



PE319: Refinery Safety, Reliability & Maintenance

Training Description:

This intensive five-day training course provides refinery professionals with the knowledge and tools needed to enhance operational safety, maintain high asset reliability, and implement effective maintenance practices. Participants will explore industry best practices, regulatory requirements, failure prevention strategies, and modern reliability-centered maintenance (RCM) techniques. Real-life case studies, group discussions, and practical exercises will ensure participants can apply learning directly to refinery operations, resulting in safer, more reliable, and cost-effective performance.

Training Objectives:

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

- ✓ Understand key safety principles, hazard management, and regulatory requirements in refinery operations
- ✓ Apply risk assessment and hazard identification methods to prevent incidents
- ✓ Integrate reliability-centered maintenance (RCM) into refinery maintenance strategies
- ✓ Implement predictive and preventive maintenance to reduce unplanned downtime
- ✓ Develop practical strategies for turnaround planning, asset integrity management, and equipment lifecycle optimization
- ✓ Foster a safety culture that complements operational reliability

Training Designed for:

This training course is intended for Refinery Operations Managers & Supervisors, Safety & HSE Officers/Managers, Maintenance Engineers & Planners, Reliability Engineers, Asset Integrity Managers, Process Engineers involved in operations and maintenance and Inspection Engineers & Condition Monitoring Specialists.

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

❖ Refinery Safety Fundamentals

- Overview of refinery operations and safety-critical areas
- Global safety regulations and industry standards (OSHA, API, ISO)
- Process safety management (PSM) principles
- Hazard identification techniques (HAZOP, HAZID, LOPA)
- Incident investigation and root cause analysis basics
- Case studies of major refinery accidents and lessons learned

DAY TWO:

❖ Risk Management & Safety Systems

- Risk assessment methods and ALARP principle
- Safety Integrity Level (SIL) and Safety Instrumented Systems (SIS)
- Fire & explosion prevention in refinery units
- Emergency preparedness and response planning
- Human factors and behavior-based safety (BBS) in refineries
- Integrating safety with operational excellence

DAY THREE:

❖ Reliability & Asset Integrity Management

- Fundamentals of reliability engineering
- Reliability Centered Maintenance (RCM) in refineries
- Asset Integrity Management Systems (AIMS) and API RP 580/581 (Risk-Based Inspection)
- Failure modes, effects, and criticality analysis (FMECA)
- Condition monitoring techniques (vibration, thermography, oil analysis)
- Managing corrosion, erosion, and fouling in refinery equipment

DAY FOUR:

❖ Maintenance Strategies & Best Practices

- Preventive vs. predictive vs. corrective maintenance
- Maintenance planning and scheduling in refinery context
- Spare parts management and reliability of supply chain
- Turnaround (TAR) and shutdown planning strategies
- Computerized Maintenance Management Systems (CMMS)
- Maintenance KPIs and performance tracking

DAY FIVE:

❖ Integration, Optimization & Continuous Improvement

- Linking safety, reliability, and maintenance for refinery excellence
- Continuous improvement tools (Lean, Six Sigma, Kaizen) in refinery maintenance
- Incident prevention through proactive maintenance
- Cost-benefit analysis of reliability initiatives
- Developing a refinery safety & reliability improvement roadmap
- **Workshop:** Creating a safety and reliability action plan for your refinery

❖ Course Conclusion

❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Group and Corporate Discounts:

- We offer group and corporate discounts on many courses. These discounts are available for clients who want to maximize their return on investment.

Individual Discounts:

- We offer individual discounts on many courses for people who are self-sponsored and make their payment in full and upfront at the time of registration

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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