MAWA EVENTS

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

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

CERTIFIED PLANT ENGINEER (CPE)

"Mastering Engineering, Operations, and Maintenance for Industrial Excellence"

Schedule

Date	Venue	Fees (Face-to-Face)
04 – 08 May 2026	Dubai, UAE	USD 3495 per delegate

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

Introduction

Plant engineering plays a critical role in maintaining the productivity, efficiency, and safety of industrial facilities. Certified Plant Engineers (CPEs) are responsible for overseeing engineering operations, managing maintenance programs, optimizing equipment performance, and ensuring regulatory compliance.

This intensive certification program provides participants with the multidisciplinary skills required to excel in modern plant engineering roles. The course blends technical training in mechanical, electrical, and utility systems with managerial expertise in safety, cost control, and continuous improvement.

Objectives

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

- Oversee plant operations and ensure asset performance and reliability
- Apply preventive and predictive maintenance strategies effectively
- Manage energy usage, utility systems, and sustainability efforts
- Implement engineering standards, safety regulations, and compliance controls
- Use data-driven tools for cost optimization and performance improvement

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Why Attend

- Earn the CPE designation and boost your engineering leadership credentials
- Strengthen your command of key plant systems, processes, and tools
- Develop a cross-functional understanding of maintenance, safety, and operations
- Benchmark against best practices in asset management and energy efficiency
- Prepare for senior engineering, facilities, or maintenance management roles

Target Audience

This program is designed for:

- Plant and facility engineers
- Maintenance and reliability professionals
- Operations and production managers
- Engineering supervisors and technical consultants
- Professionals seeking CPE certification or engineering advancement

Individual Benefits

Key competencies that will be developed include:

- Technical proficiency in mechanical, electrical, and utility systems
- Strategic planning of plant maintenance and energy management
- Problem-solving using engineering diagnostics and tools
- Leadership in safety, compliance, and performance improvement
- Ability to reduce downtime, extend asset life, and control costs

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved plant reliability and production continuity
- Optimized maintenance schedules and cost controls
- Enhanced safety, risk reduction, and regulatory alignment
- Energy savings and environmental performance gains
- Strong leadership pipeline for engineering and facilities management

Instructional Methodology

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

- Engineering Briefings – Core systems, standards, and tools
- Case Studies – Equipment failure, maintenance audits, energy savings
- Workshops – Diagnostics, root cause analysis, utility cost modeling
- Peer Exchange – Site challenges and practical engineering insights
- Toolkits – Maintenance checklists, energy calculators, inspection forms

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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: Plant Engineering Overview & Maintenance Foundations

- Module 1: The Role of the Certified Plant Engineer (07:30 – 09:30) • Scope of responsibilities and leadership expectations • Cross-disciplinary knowledge areas (mechanical, electrical, civil) • Performance, cost, and compliance metrics
- Module 2: Maintenance Management Systems (09:45 – 11:15) • Reactive, preventive, and predictive maintenance • Developing a maintenance strategy • Work order systems and spare parts control
- Module 3: Failure Modes & Reliability Tools (11:30 – 01:00) • Root Cause Failure Analysis (RCFA) • Reliability-Centered Maintenance (RCM) • MTBF, MTTR, and downtime analytics
- Module 4: Workshop – Audit a Maintenance Plan (02:00 – 03:30) • Compare PM schedules, spare parts policies, and KPIs

Day 2: Mechanical Systems and Utilities

- Module 5: Pumps, Compressors, and Rotating Equipment (07:30 – 09:30) • Types, operating principles, and failure signs • Bearing alignment and vibration analysis • Seal, lubrication, and balance issues
- Module 6: HVAC and Utility Systems (09:45 – 11:15) • Heating, cooling, and ventilation systems • Compressed air, steam, water, and gas lines • Load balancing, insulation, and leak management
- Module 7: Boilers and Pressure Vessels (11:30 – 01:00) • Design, safety features, and inspection requirements • Code compliance (ASME, API) • Failure prevention and condition monitoring
- Module 8: Workshop – Mechanical System Troubleshooting (02:00 – 03:30) • Diagnostics scenarios and maintenance response planning

Day 3: Electrical Systems and Energy Management

- Module 9: Electrical Power Systems in Plants (07:30 – 09:30) • Distribution systems, switchgear, breakers • Grounding, protection, and arc flash risk • Power quality and load monitoring
- Module 10: Motor and Drive Systems (09:45 – 11:15) • Motor types, starters, and VFDs • Efficiency rating and troubleshooting failures • Motor maintenance and replacement criteria
- Module 11: Energy Efficiency and Sustainability (11:30 – 01:00) • Energy audits and benchmarking • Lighting, HVAC, motor upgrades • ISO 50001 and energy management systems
- Module 12: Workshop – Conduct a Mini Energy Audit (02:00 – 03:30) • Analyze sample utility data for savings potential

Day 4: Safety, Risk, and Compliance Management

- Module 13: Safety and Risk Management in Plants (07:30 – 09:30) • HAZOP, job hazard analysis (JHA), and LOTO • Incident reporting and investigation techniques • Emergency response and evacuation planning
- Module 14: Environmental Compliance (09:45 – 11:15) • Air, water, and waste regulations • Permit to operate, monitoring, and reporting • Emission control technologies and trends
- Module 15: Engineering Codes and Inspection Programs (11:30 – 01:00) • Applicable standards (NFPA, OSHA, API, ISO) • Planned inspection and shutdown protocols • Regulatory audits and documentation
- Module 16: Workshop – Prepare a Compliance Checklist (02:00 – 03:30) • Customized safety, inspection, and environmental checklist

Day 5: Project Management and Final Certification Prep

- Module 17: Capital Project Planning & Engineering Economics (07:30 – 09:30) • Cost estimation, ROI, and payback analysis • Project scheduling and procurement • Value engineering and scope control
- Module 18: Continuous Improvement and Lean Plant Ops (09:45 – 11:15) • Lean tools (5S, Kaizen, TPM, SMED) • Visual controls and Gemba walks • Cross-functional team engagement

- Module 19: Certification Exam Review (11:30 – 01:00) • Key knowledge areas and question formats • Test-taking strategies and practice items
- Module 20: Final Assessment & Action Plan (02:00 – 03:30) • Written exam and leadership development goals

Certification

Participants will receive the Certified Plant Engineer (CPE) credential, confirming their advanced knowledge in engineering systems, plant operations, maintenance, safety, and energy efficiency—qualifying them for senior technical and leadership roles in industrial environments.

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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