COURSE OVERVIEW RE0570
Cost Effective Maintenance Management

Course Title
Cost Effective Maintenance Management

Course Date/Venue
December 15-19, 2025/Tamra Meeting Room,
Al Bandar Rotana Creek, Dubai, UAE

Course Reference
RE0570

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Cost Effective Maintenance Management. It covers the objectives of cost-effective maintenance and roles and responsibilities of maintenance functions; the types of maintenance and their cost implications, maintenance costs, maintenance budgeting and planning, total cost of ownership (TCO) and performance indicators for cost control; the preventive maintenance (PM) strategy, predictive maintenance (PdM) Techniques and Failure Modes and Maintenance Planning; the criticality-based maintenance strategy, optime spare parts and inventory, maintenance task standardization; and the work identification and request process, work planning and job preparation.

During this interactive course, participants will learn the maintenance scheduling, maintenance execution best practices; the backlog management and maintenance documentation and records; the reliability and asset performance management, maintenance KPIs, performance dashboards and computerized maintenance management system (CMMS); the root cause analysis and cost avoidance, audit and benchmark maintenance and kaizen and continuous improvement tools; eliminating unnecessary maintenance and extending PM intervals with data support; outsourcing and contract maintenance and developing a reliability-focused culture; and the shutdown and turnaround optimization.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on Cost Effective Maintenance Management
- Discuss the objectives of cost-effective maintenance and roles and responsibilities of maintenance functions
- Identify the types of maintenance and their cost implications, maintenance costs, maintenance budgeting and planning, total cost of ownership (TCO) and performance indicators for cost control
- Carryout preventive maintenance (PM) strategy, predictive maintenance (PdM) Techniques and Failure Modes and Maintenance Planning
- Apply criticality-based maintenance strategy, optime spare parts and inventory, maintenance task standardization
- Recognize work identification and request process, work planning and job preparation
- Employ maintenance scheduling, maintenance execution best practices and discuss backlog management as well as maintenance documentation and records
- Identify reliability and asset performance management, maintenance KPIs and performance dashboards and apply computerized maintenance management system (CMMS)
- Discuss root cause analysis and cost avoidance, audit and benchmark maintenance and recognize kaizen and continuous improvement tools
- Eliminate unnecessary maintenance and extend PM intervals with data support
- Outsource and contract maintenance, develop a reliability-focused culture and apply shutdown and turnaround optimization

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course covers systematic techniques in cost effective maintenance management for those who are involved in cost analysis and performance measurement. Maintenance and reliability management personnel such as maintenance managers, maintenance engineers, plant engineers, maintenance superintendents and first-line supervisors, maintenance foremen and preventive maintenance specialists will benefit from this course.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours

Certificate Accreditations

Haward's Certificates are accredited by the following international accreditation organizations:

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Karl Thanasis, PEng, MSc, MBA, BSc, is **Senior Mechanical & Maintenance Engineer** with over **45 years** of extensive industrial experience. His wide expertise includes **Piping & Pipeline**, Maintenance, Repair, **Shutdown**, **Turnaround & Outages**, **Maintenance & Reliability** Management, **Mechanical Maintenance** Planning, Scheduling & Work Control, Advanced Techniques in **Maintenance** Management, **Predictive & Preventive** Maintenance, **Maintenance & Operation Cost Reduction** Techniques, Reliability Centered Maintenance (**RCM**), **Machinery Failure** Analysis, **Rotating Equipment Reliability** Optimization & Continuous Improvement, **Material Cataloguing**, **Mechanical & Rotating Equipment** Troubleshooting & Maintenance, **Root Cause Analysis & Reliability** Improvement, **Condition** Monitoring, **Root Cause Failure Analysis** (RCFA), **Steam Generation**, **Steam Turbines**, **Power Generator Plants**, **Gas Turbines**, **Combined Cycle Plants**, **Boilers**, **Process Fired Heaters**, Air Preheaters, Induced Draft Fans, All Heaters Piping Work, Refractory Casting, Heater Fabrication, Thermal & Fired Heater Design, **Heat Exchangers**, Heat Transfer, Coolers, **Power Plant** Performance, Efficiency & Optimization, **Storage Tank** Design & Fabrication, **Thermal Power Plant** Management, **Boiler & Steam** System Management, **Pump** Operation & Maintenance, **Chiller & Chiller Plant** Design & Installation, **Pressure Vessel**, **Safety Relief Valve** Sizing & Selection, **Valve** Disassembling & Repair, Pressure Relief Devices (**PSV**), **Hydraulic & Pneumatic** Maintenance, Advanced **Valve** Technology, **Pressure Vessel** Design & Fabrication, **Pumps**, Turbo-Generator, Turbine **Shaft Alignment**, **Lubrication**, Mechanical **Seals**, Packing, **Blowers**, **Bearing** Installation, **Couplings**, **Clutches** and **Gears**. Further, he is also versed in **Wastewater Treatment** Technology, **Networking** System, **Water Network Design**, Industrial **Water Treatment** in Refineries & Petrochemical Plants, **Piping** System, Water Movement, Water Filtering, Mud Pumping, **Sludge Treatment** and **Drying**, **Aerobic Process** of **Water Treatment** that includes **Aeration**, **Sedimentation** and **Chlorination Tanks**. His strong background also includes **Design** and **Sizing** of all **Waste Water Treatment Plant Associated Equipment** such as **Sludge Pumps**, **Filters**, **Metering Pumps**, **Aerators** and **Sludge Decanters**.

Mr. Thanasis has acquired his thorough and practical experience as the **Project Manager**, **Plant Manager**, **Area Manager - Equipment Construction**, **Construction Superintendent**, **Project Engineer** and **Design Engineer**. His duties covered **Plant Preliminary Design**, **Plant Operation**, **Write-up** of **Capital Proposal**, **Investment Approval**, **Bid Evaluation**, **Technical Contract Write-up**, **Construction** and **Sub-contractor Follow up**, **Lab Analysis**, **Sludge Drying** and **Management** of **Sludge Odor** and **Removal**. He has worked in various companies worldwide in the **USA**, **Germany**, **England** and **Greece**.

Mr. Thanasis is a **Registered Professional Engineer** in the **USA** and **Greece** and has a **Master's** and **Bachelor's** degree in **Mechanical Engineering** with **Honours** from the **Purdue University** and **SIU** in **USA** respectively as well as an **MBA** from the **University of Phoenix** in **USA**. Further, he is a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**) a **Certified Instructor/Trainer** and has delivered numerous trainings, courses, seminars, workshops and conferences worldwide.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Fee

US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Maintenance Management*** *Definitions: Maintenance versus Reliability • Objectives of Cost-Effective Maintenance • Maintenance Maturity Levels • Roles and Responsibilities of Maintenance Functions*
0930 – 0945	*Break*
0945 – 1030	***Types of Maintenance & Their Cost Implications*** *Corrective (Breakdown) Maintenance • Preventive Maintenance (PM) • Predictive Maintenance (PdM) • Proactive and Reliability-Centered Maintenance (RCM)*
1030 – 1130	***Understanding Maintenance Costs*** *Direct versus Indirect Maintenance Costs • Capital versus Operational Expenditure • Cost of Downtime, Lost Production and Poor Quality • Maintenance Cost Structure by Equipment Lifecycle*
1130 – 1215	***Maintenance Budgeting & Planning*** *Budget Preparation and Approval • Linking Budget to Asset Criticality • Identifying Cost Drivers • Forecasting and Contingency Reserves*
1215 – 1230	*Break*
1230 – 1330	***Total Cost of Ownership (TCO)*** *Acquisition Cost versus Operational Cost • Life Cycle Costing (LCC) and its Relevance • Cost-Benefit Analysis of Maintenance Strategies • TCO Optimization Through Early Interventions*

1330 – 1420	***Performance Indicators for Cost Control*** *Maintenance Cost per Unit Production • Mean Time Between Failure (MTBF) / Mean Time to Repair (MTTR) • Planned Maintenance versus Emergency Ratio • Maintenance Effectiveness Ratio*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Preventive Maintenance (PM) Strategy*** *Developing a PM Program • Determining PM Frequencies and Intervals • Optimizing PM Tasks Based on Criticality • Risk-Based Preventive Maintenance*
0830 – 0930	***Predictive Maintenance (PdM) Techniques*** *Vibration Monitoring and Analysis • Oil Analysis and Wear Particle Detection • Thermography and Ultrasound Inspections • Condition Monitoring Cost Justification*
0930 – 0945	*Break*
0945 – 1100	***Failure Modes & Maintenance Planning*** *Failure Mode and Effects Analysis (FMEA) • Root Cause Failure Analysis (RCFA) • Identifying Hidden versus Evident Failures • Planning Interventions Based on Failure Patterns*
1100 – 1215	***Criticality-Based Maintenance Strategy*** *Equipment Criticality Ranking • Maintenance Tasks for High versus Low Critical Assets • Reducing Over-Maintenance and Under-Maintenance • Alignment with Operational Priorities*
1215 – 1230	*Break*
1230 – 1330	***Optimizing Spare Parts & Inventory*** *Spares Classification (Critical, Fast/Slow-Moving) • Just-in-Time (JIT) versus Stockholding Strategies • Economic Order Quantity (EOQ) and Reorder Points • Inventory Cost Reduction through Standardization*
1330 – 1420	***Maintenance Task Standardization*** *Developing Maintenance Job Plans • Checklists and Work Instructions • Time and Motion Study for Task Optimization • Skill Matrix and Assignment Based on Task Complexity*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Work Identification & Request Process*** *Channels of Work Identification • Work Prioritization (Urgent versus Planned) • Standard Maintenance Request Forms • Work Categorization: Emergency, Routine, Shutdown*
0830 – 0930	***Work Planning & Job Preparation*** *Work Order Planning Process • Determining Scope, Resources and Duration • Job Hazard Analysis (JHA) and Permits • Tools, Materials and Access Pre-Checks*
0930 – 0945	*Break*

0945 – 1100	***Maintenance Scheduling*** *Short-Term and Long-Term Scheduling • Gantt Charts and Bar Chart Scheduling • Resource Leveling and Load Balancing • Shutdown and Turnaround Planning*
1100 – 1215	***Maintenance Execution Best Practices*** *Work Order Execution and Field Supervision • Daily Schedule Compliance Monitoring • Capturing Actuals (Man-Hours, Downtime, Spares Used) • Safe Execution Culture and Housekeeping*
1215 – 1230	*Break*
1230 – 1330	***Backlog Management*** *Types of Backlogs (Safety, Compliance, Functional) • Acceptable Backlog Limits • Prioritization and Deferral Protocols • Aging Analysis and Reporting*
1330 – 1420	***Maintenance Documentation & Records*** *Work History Records and Traceability • Maintenance Logs and Asset Condition Reports • Lessons Learned and Feedback Loop • Standardization of Maintenance Documents*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4

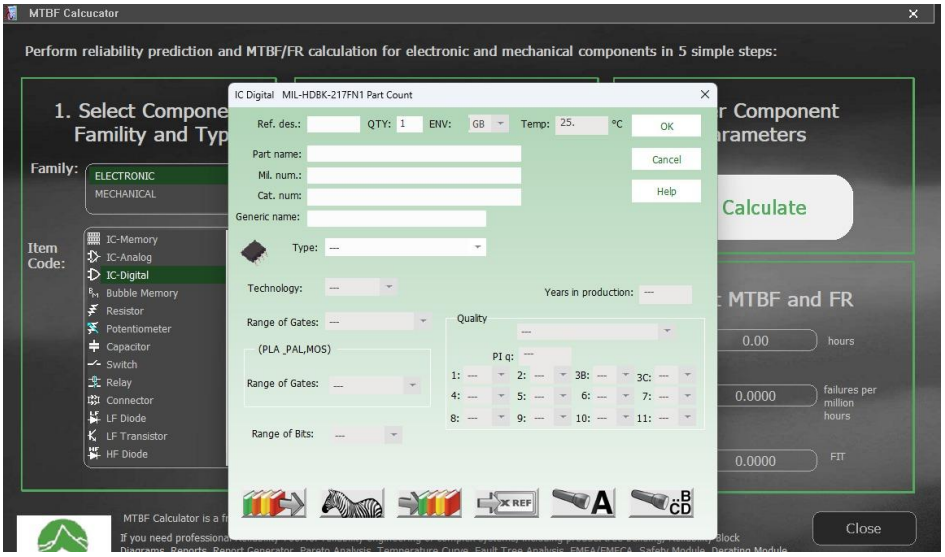
0730 – 0830	***Reliability & Asset Performance Management*** *Definition and Drivers of Reliability • Equipment Reliability versus Maintainability • Strategies for Improving Asset Uptime • Integration with Asset Integrity Programs*
0830 – 0930	***Maintenance KPIs & Performance Dashboards*** *Leading versus Lagging Indicators • KPI Examples: Schedule Compliance, Wrench Time, Backlog Age • KPI Visualization through Dashboards • KPI-Driven Decisions and Continuous Improvement*
0930 – 0945	*Break*
0945 – 1100	***Computerized Maintenance Management System (CMMS)*** *Benefits of CMMS in Cost-Effective Maintenance • CMMS Modules: Asset Registry, Work Orders, Inventory • Data Accuracy and User Training • CMMS Reports for Decision-Making*
1100 – 1215	***Root Cause Analysis & Cost Avoidance*** *RCA Tools: 5 Whys, Fishbone, Fault Tree • Identifying Recurring and Chronic Failures • Linking Root Causes to Cost Impacts • Cost Avoidance Documentation and Metrics*
1215 – 1230	*Break*
1230 – 1330	***Auditing & Benchmarking Maintenance*** *Internal Maintenance Audits • Benchmarking Against Best-in-Class Practices • Gap Analysis and Corrective Action Planning • Performance Grading Systems*
1330 – 1420	***Kaizen & Continuous Improvement Tools*** *PDCA (Plan-Do-Check-Act) Cycle • Lean Maintenance Concepts • Waste Elimination in Maintenance • Engaging Teams in Continuous Improvement*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5

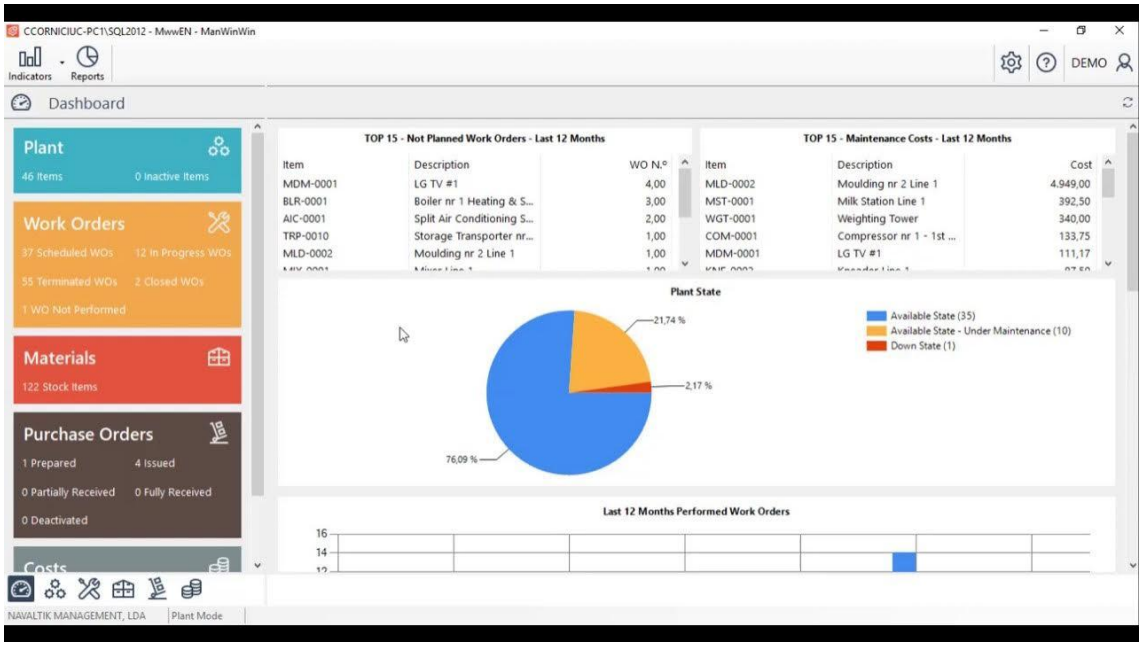
0730 – 0830	***Strategic Maintenance Cost Reduction*** *Eliminating Unnecessary Maintenance • Extending PM Intervals with Data Support • Asset Lifecycle Extension Strategies • Collaboration with Operations for Cost Control*
0830 – 0930	***Outsourcing & Contract Maintenance*** *When to Outsource: Cost-Benefit Analysis • Contracting Models: Fixed Price, Unit Rate, Hybrid • Contractor Performance Monitoring • Long-Term Partnerships and SLAs*
0930 – 0945	*Break*
0945 – 1100	***Developing a Reliability-Focused Culture*** *Leadership Role in Maintenance Excellence • Empowering Technicians and Supervisors • Training and Cross-Skilling for Flexibility • Promoting Ownership and Accountability*
1100 – 1215	***Shutdown & Turnaround Optimization*** *Planning for Cost and Schedule Compliance • Scope Freeze and Resource Readiness • Critical Path Management • Post-Shutdown Performance Review*
1215 – 1230	*Break*
1230 – 1345	***Case Studies in Cost-Effective Maintenance*** *Real-World Examples of PM Optimization • Success Stories in Reducing Maintenance Costs • Lessons from Predictive Maintenance Case Studies • Industry Benchmarking Case Reviews*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the state-of-the-art simulator "MTBF Calculator" and "ManWinWin Express CMMS Software".



MTBF Calculator



ManWinWin Express CMMS Software

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org