



COURSE OVERVIEW RE0019-4D
Certified Maintenance & Reliability Technician (CMRT)
(SMRP Exam Preparation Training)

Course Title

Certified Maintenance & Reliability Technician (CMRT) (SMRP Exam Preparation Training)

Course Date/Venue

December 07-10, 2025/Safa Meeting Room, Holiday Inn Yanbu, an IHG Hotel, Yanbu, KSA

Course Reference

RE0019-4D

Course Duration/Credits

Four days/2.4 CEUs/24 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 Certified Maintenance & Reliability Technician (SMRP-CMRT). It covers the role of CMRT in asset-intensive industries and maintenance and reliability within SMRP framework; the hazard classification and control, risk concepts and assessment and information security and vulnerability in maintenance; the hazard identification and risk assessment (HIRA) procedure; the preventive maintenance (PM), predictive maintenance (PdM) and corrective and reactive maintenance; the lubrication and inspection practices and maintenance planning and scheduling; and the documentation and work control.



During this interactive course, participants will learn the principles of RCM, failure consequences and RCM decision logic; the failure modes and effects analysis (FMEA), root cause analysis (RCA), condition monitoring and data collection; the layers of protection (LOPA) in reliability, risk mitigation and reliability improvement, work execution standards and safety in maintenance operations; the human factors in reliability, performance measurement and KPIs, reliability tools and techniques and continuous improvement in maintenance; troubleshooting electrical systems and the rotating equipment and mechanical and instrumentation issues; and the systematic troubleshooting approaches.





Course Objectives

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

- Get prepared for the next CMRT exam and have enough knowledge and skills to pass such exam in order to get Certified Maintenance and Reliability Technician (CMRT) certification from the Society for Maintenance and Reliability Professionals (SMRP)
- Discuss the role of CMRT in asset-intensive industries and maintenance and reliability within SMRP framework
- Carryout hazard classification and control, risk concepts and assessment and information security and vulnerability in maintenance
- Employ hazard identification and risk assessment (HIRA) procedure, preventive maintenance (PM), predictive maintenance (PdM) and corrective and reactive maintenance
- Implement lubrication and inspection practices, maintenance planning and scheduling and documentation and work control
- Discuss the principles of RCM, failure consequences and RCM decision logic
- Apply failure modes and effects analysis (FMEA), root cause analysis (RCA), condition monitoring and data collection
- Recognize layers of protection (LOPA) in reliability and apply risk mitigation and reliability improvement, work execution standards and safety in maintenance operations
- Identify human factors in reliability and apply performance measurement and KPIs, reliability tools and techniques and continuous improvement in maintenance
- Troubleshoot electrical systems and rotating equipment and discuss mechanical and instrumentation issues and systematic troubleshooting approaches

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 provides an overview of all significant aspects and considerations of certified maintenance and reliability technician for maintenance technicians and mechanics, reliability and maintenance specialists, plant and operations technicians, condition monitoring and inspection personnel, electrical and mechanical technicians, junior engineers, maintenance supervisors and team leaders, asset and facilities management personnel and other technical staff.

Training Fee

US\$ 5,000 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Exam Fee

US\$ 400 per Delegate + **VAT**.



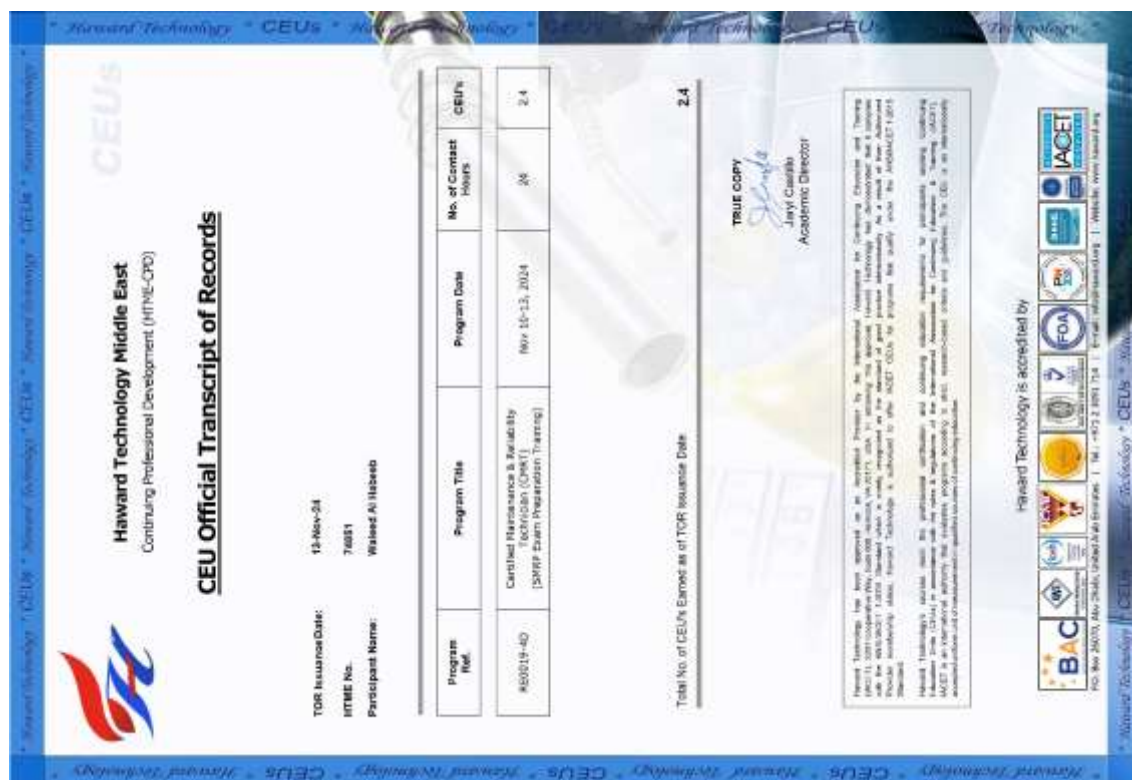


SMRP-CMRT

- (1) SMRP-CMRT certificates will be issued to participants who have successfully passed the SMRP-CMRT examination.



- (2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course



Certificate Accreditations

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

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Society for Maintenance & Reliability Professionals (SMRP)

The course instructor is certified by **The Society for Maintenance & Reliability Professionals (SMRP)** to deliver and administer its internationally-recognized qualifications and certification programs on Maintenance & Reliability Best Practices. **SMRP** is a nonprofit professional society formed by practitioners to advance the reliability and physical asset management industry and to create leaders in the field. SMRP provides unparalleled value for individual practitioners looking to expand their knowledge and skills in maintenance and reliability and build more business connections with other practitioners.

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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.

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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 **2.4 CEUs** (Continuing Education Units) or **24 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. George Loizou, MSc, BSc, CMRP, is a **Senior Mechanical & Maintenance Engineer** with over **30 years** of industrial experience within the **Oil, Gas, Refinery and Petrochemical** industries. His field of expertise includes Effective **Reliability Maintenance**, Excellence in **Maintenance & Reliability Management**, **Preventive & Predictive Maintenance**, Machinery Failure Analysis (**RCFA**), **Reliability Optimization & Continuous Improvement**, **Maintenance Planning, Scheduling & Work Control**, **Maintenance Management Strategy**, **Maintenance Management, Turnaround Management**, **Maintenance Planning & Scheduling**, **Shaft Alignment**, **Dynamic Balancing**, **Vibration Analysis**, **Rotating Machinery Maintenance**, **Heat Exchanger Maintenance**, **Storage Tank and Piping Design Construction and Maintenance**.

During his career, Mr. Loizou gained his practical and field experience through his various significant positions and dedication as the **Head of Mechanical Maintenance**, **Project Manager**, **Terminal Manager** and **Engineering Manager** for numerous companies such as **Cyprus Petroleum Refinery Ltd** and **Cyprus Petroleum Storage Company Ltd**.

Mr. Loizou has **Master** and **Bachelor** degrees in **Mechanical Engineering** from **The Pennsylvania State University** and **State University of New York, USA**, respectively. Further, he is a **Certified Instructor/Trainer**, a member of **SMRP**, a Certified Maintenance and Reliability Professional (**CMRP**) and approved **Exam Proctor** for the Society for Maintenance and Reliability Professionals Certifying Organization (**SMRPCO**). He is also a member of the Cyprus Scientific and Technical Chamber and the Institution of Mechanical Engineers of UK (**IMechE**). Mr. Loizou has served for two terms as member of the Cyprus Industrial Dispute Tribunal. He also served as President of the Rotary Club of Larnaca Cyprus and has further delivered numerous trainings, courses, workshops, seminars and conferences internationally.

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 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: Sunday, 07th of December 2025

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Maintenance & Reliability Definition of Maintenance, Reliability and Availability • Role of CMRT in Asset-Intensive Industries • Maintenance & Reliability within SMRP Framework • Benefits of Certification for Technicians and Organizations
0930 – 0945	Break
0945 – 1030	Hazard Classification & Control What is a Hazard? Definitions and Examples • Hazard Categories and Sources in Maintenance Environments • Hierarchy of Control (Elimination, Substitution, Engineering, Administrative, PPE) • Effectiveness of Control Measures
1030 – 1100	Risk Concepts & Assessment Risk Significance and its Relation to Reliability • Basic Steps of Quantitative Risk Assessment (QRA) • Risk Matrix and Qualitative Risk Assessment Tools • Using Risk Assessment Logic Diagrams
1100 – 1130	Industrial Accidents & Case Studies Anatomy of Accidents and Near-Misses • Probable Causes of Accidents (Technical & Human) • Compounding Effects and Major Consequences • Bhopal Gas Tragedy – Lessons Learned
1130 – 1215	Information Security & Vulnerability in Maintenance Threat versus Vulnerability in Operational Systems • Information Security Concepts for Technicians • Accidental Events Leading to Operational Failure • Mitigation Measures for Critical Systems
1215 – 1230	Break
1230 – 1330	HIRA (Hazard Identification & Risk Assessment) Procedure Steps in HIRA Application • Building a Qualitative Risk Assessment Matrix • Application of ALARP (As Low As Reasonably Practicable) • Case-Based Application in Maintenance Tasks
1330 – 1420	Preventive Maintenance (PM) Fundamentals Purpose and Goals of PM • Developing a PM Schedule • Documentation and Recordkeeping in PM • Case Study: Optimizing PM Tasks
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: Monday, 08th of December 2025

0730 – 0830	Predictive Maintenance (PdM) Concepts Introduction to Condition Monitoring • Key PdM Technologies (Vibration, Thermography, Ultrasound, Oil Analysis) • Data Collection and Interpretation • Benefits and Challenges of PdM
0830 – 0930	Corrective & Reactive Maintenance Difference Between Corrective and Breakdown Maintenance • Common Corrective Actions for Rotating and Static Equipment • Safety Concerns in Reactive Maintenance • Cost and Downtime Implications
0930 – 0945	Break
0945 – 1030	Lubrication & Inspection Practices Lubrication Principles and Contamination Control • Selection of Lubricants Based on Operating Environment • Routine Inspection Techniques • Aligning Lubrication Programs with Reliability Goals
1030 – 1130	Maintenance Planning & Scheduling Planning vs. Scheduling – Key Distinctions • Role of Planner/Scheduler in Reliability • Job Packages and Work Orders • KPIs for Planning and Scheduling Effectiveness
1130 – 1215	Documentation & Work Control Standard Work Instructions (SWI) • Job Safety Analysis (JSA) Integration • Recording Maintenance History • Using CMMS/EAM Systems Effectively
1215 – 1230	Break
1230 – 1330	RCM Fundamentals Principles of RCM • Failure Consequences (Safety, Environmental, Operational, Non-Operational) • RCM Decision Logic • Examples of RCM Application in Industry
1330 – 1420	Failure Modes & Effects Analysis (FMEA) Purpose of FMEA • Steps in Conducting FMEA • Risk Priority Number (RPN) Calculation • Practical Examples for Equipment
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: Tuesday, 09th of December 2025

Day 6: Tuesday, 30 of December 2020	
0730 – 0830	Root Cause Analysis (RCA) RCA Methodology Overview • Tools: Fishbone Diagram, 5-Whys, Fault Tree Analysis • Application to Maintenance Problems • RCA Case Study in Reliability Failures
0830 – 0930	Condition Monitoring & Data Collection Types of Vibration Measurements (Acceleration, Velocity, Displacement) • Thermography and Heat Transfer Concepts • Oil Analysis Parameters and Interpretation • Ultrasound Inspection Applications
0930 – 0945	Break
0945 – 1030	Layers of Protection (LOPA) in Reliability Definition and Application of LOPA • Identifying Independent Protection Layers • Risk Reduction through Multiple Barriers • Case Application to Maintenance Systems



1030 – 1100	Risk Mitigation & Reliability Improvement <i>Proactive vs. Reactive Approaches • Reducing Vulnerabilities in Equipment • Optimizing PM/PdM Strategies • Aligning with ALARP Principles</i>
1100 – 1130	Work Execution Standards <i>Job Planning and Resource Allocation • Tools and Spare Parts Management • Work Permit Systems (Hot Work, Confined Space, Electrical) • Ensuring Quality of Completed Work</i>
1130 – 1215	Safety in Maintenance Operations <i>Lockout/Tagout (LOTO) Procedures • Electrical Safety in Maintenance • PPE Requirements for Technicians • Emergency Response Procedures</i>
1215 – 1230	Break
1230 – 1330	Human Factors in Reliability <i>Human Error Types and Classifications • Ergonomics in Maintenance Tasks • Cognitive Load and Fatigue Impact • Reducing Human Error Through Training</i>
1330 – 1420	Performance Measurement & KPIs <i>Maintenance KPIs (MTBF, MTTR, OEE) • Leading vs. Lagging Indicators • Benchmarking Maintenance Performance • Linking KPIs to Reliability Outcomes</i>
1420 – 1430	Recap <i>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</i>
1430	Lunch & End of Day Three

Day 4: Wednesday, 10th of December 2025

0730 – 0830	Reliability Tools & Techniques <i>Pareto Analysis for Maintenance Issues • Weibull Analysis of Failures • Criticality Analysis for Asset Prioritization • Risk-Based Inspection (RBI) Concepts</i>
0830 – 0930	Continuous Improvement in Maintenance <i>PDCA (Plan-Do-Check-Act) Cycle • Kaizen in Maintenance Activities • Lean Principles Applied to Reliability • Engaging Workforce in Improvement Initiatives</i>
0930 – 0945	Break
0945 – 1030	Overview of SMRP CMRT Exam Domains <i>Maintenance Practices Domain (32%) • Preventive & Predictive Maintenance Domain (29%) • Troubleshooting & Analysis Domain (20%) • Corrective Maintenance Domain (19%)</i>
1030 -1100	Exam Structure & Strategy <i>Exam Format and Scoring Breakdown • Time Management During the Exam • Handling Difficult Questions • Use of SMRP Body of Knowledge</i>
1100 – 1215	Mock Exam & Question Review <i>Practice Exam Session • Review of Answers and Explanations • Identifying Knowledge Gaps • Techniques for Improving Weak Areas</i>
1215 – 1230	Break
1230 – 1300	Troubleshooting & Analysis Focus <i>Troubleshooting Electrical Systems • Troubleshooting Rotating Equipment • Mechanical versus Instrumentation Issues • Systematic Troubleshooting Approaches</i>

1300 – 1345	<i>Review of Key Concepts & Case Studies</i> <i>Hazard Identification and Control • Reliability Tools Recap (FMEA, RCA, RCM) • Maintenance Strategies Overview • Case Studies from Industry Failures</i>
1345 – 1400	<i>Course Conclusion</i> <i>Using this Course Overview, the Instructor(s) will Brief Participants about Topics that were Covered During the Course</i>
1400 – 1415	<i>POST-TEST</i>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch & End of Course</i>

MOCK Exam

Upon the completion of the course, participants have to sit for a MOCK Examination similar to the exam of the Certification Body through Haward's Portal. Each participant will be given a username and password to log in Haward's Portal for the MOCK Exam during the 60 days following the course completion. Each participant has only one trial for the MOCK exam within this 60-day examination window. Hence, you have to prepare yourself very well before starting your MOCK exam as this exam is a simulation to the one of the Certification Body.

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



As part of the course kit, the following e-book will be given to all participants:



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