COURSE OVERVIEW TM0790
Certified Reliability Engineer (CRE)
American Society for Quality (ASQ)
Exam Preparation Training

Course Title
Certified Reliability Engineer (CRE): American Society for Quality (ASQ) - *Exam Preparation Training*

Course Reference
TM0790

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

Course Date/Venue

Session(s)	Date	Venue
1	January 11-15, 2026	Pierre Lotti Meeting Room, Movenpick Hotel Istanbul Golden Horn, Istanbul, Turkey
2	April 05-09, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
3	July 05-09, 2026	Crowne Meeting Room, Crowne Plaza Al Khobar, an IHG Hotel, Al Khobar, Kingdom of Saudi Arabia
4	October 05-09, 2026	Glasshouse Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Description

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

Reliability engineers are professionals who understand the principles of performance evaluation and prediction to improve product/systems safety, reliability, and maintainability. This course complies with the Body of Knowledge (BOK) specified for ASQ's Reliability Engineer certification.

This course is designed to provide delegates with an up-to-date overview of Certified Reliability Engineer (CRE): American Society for Quality (ASQ). It covers the reliability fundamentals, leadership foundations and reliability foundations; the risk management identification, analysis and mitigation; the basic concepts of probability and statistics for reliability; the sources and uses of reliability data and types of data; the data collection methods, data summary and reporting; the failure analysis methods and failure reporting, analysis and corrective action system (FRACAS); the reliability test strategies, environmental factors and use conditions, failure consequence and failure criteria; and the accelerated life tests, stress screening, qualification/demonstration testing, degradation (wear-to-failure) testing and software testing.

During this interactive course, participants will learn the reliability block diagrams and models, physics of failure and failure mechanisms; the failure models, reliability prediction methods and design prototyping; the evaluation techniques and stress-strength analysis, design of experiments and reliability optimization; the human factors, design for X (DFX) and design for reliability (DfR); the materials, components, equipment and software selection techniques, parts standardization and system simplification; and the maintenance strategies, preventive maintenance (PM) analysis and corrective maintenance analysis.

Course Objectives

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

- Prepare for the next ASQ CRE exam and have enough knowledge and skills to pass such exam in order to be certified as a "*Certified Reliability Engineer (CRE)*" from an internationally recognized Accreditation Body (American Society for Quality – ASQ)
- Discuss reliability fundamentals covering leadership foundations and reliability foundations
- Carryout risk management identification, analysis and mitigation and discuss the basic concepts of probability and statistics for reliability
- Identify the sources and uses of reliability data and types of data as well as apply data collection methods, data summary and reporting
- Employ failure analysis methods and failure reporting, analysis and corrective action system (FRACAS)
- Apply reliability test strategies and recognize environmental factors and use conditions, failure consequence and failure criteria
- Carryout accelerated life tests, stress screening, qualification/demonstration testing, degradation (wear-to-failure) testing and software testing
- Illustrate reliability block diagrams and models, physics of failure and failure mechanisms, failure models, reliability prediction methods and design prototyping
- Design evaluation techniques and apply stress-strength analysis, design of experiments and reliability optimization
- Identify human factors, design for X (DFX) and design for reliability (DfR)
- Apply materials, components, equipment and software selection techniques, parts standardization and system simplification
- Carryout maintenance strategies, preventive maintenance (PM) analysis and corrective maintenance analysis

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 is essential for those who desire to reinforce their skills, knowledge and capacity to understand the reliability of the organizational excellence body of knowledge in preparation for taking ASQ certified reliability manager examination. Further, the course is also beneficial for reliability managers, reliability engineers, maintenance managers, maintenance engineers, HSE managers, HSE engineers, safety engineers, quality engineers, quality auditors, process engineers, quality managers, instrumentation & control engineers and those who are primarily involved in implementing reliability, quality and compliance within their organizations.

Exam Eligibility & Structure

- You must have eight years of on-the-job experience in one or more of the areas of the Certified Reliability Engineer Body of Knowledge
- A minimum of three years of this experience must be in a decision-making position. "Decision making" is defined as the authority to define, execute, or control projects/processes and to be responsible for the outcome. This may or may not include management or supervisory positions
- If you are now or were previously certified by ASQ as:-
  - Quality Engineer
  - Quality Auditor
  - Software Quality Engineer
  - Software Quality Professional or,
  - Manager of Quality/Organizational Excellence, experience used to qualify for certification in these fields applies to certification as a Reliability Engineer
- Candidate who have completed a degree from a college, university, or technical school with accreditation accepted by ASQ, part of the eight-year experience requirement will be waived, as follows (only one of these waivers may be claimed):-
  - Diploma from a technical or trade school–one year will be waived
  - Associate's degree–two years waived
  - Bachelor's degree–four years waived
  - Master's or doctorate–five years waived

Degrees or diplomas from educational institutions outside the United States must be equivalent to degrees from U.S. educational institutions

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.

ASQ-CRE Certificate(s)

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

(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ASQ accredited Continuing Education Units (CEUs) earned during the 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.

Accommodation

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

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. Dimitry Rovas, CEng, MSc, PMI-PMP, SMRP-CMRP is a **Senior Mechanical & Maintenance Engineer** with extensive industrial experience in **Oil**, **Gas**, **Power** and **Utilities** industries. His expertise includes **Pipeline** System Design, Construction, Maintenance and Repair, Facilities & **Pipeline** Integrity Assessment, **Pipeline** Welding Practices, Internal **Corrosion of Pipelines, Pipeline Integrity Management & Risk Assessment**, **Thermal Insulation**, **Insulation** Standards & Regulations, **Insulation** Materials & Selection, **Piping System Insulation**, **Insulation Installation** Techniques, **Insulation** Inspection & Quality Control, **Insulation** Thickness Calculation, **Insulation** & Corrosion Protection, **Heat Exchanger & Boiler Insulation**, **Tanks & Vessels Insulation**, **Pipeline & Piping Insulation**, **Insulation** Testing & Quality Assurance, **Insulation** Maintenance & Repair, **Insulation** Retrofitting, **Impulse Tube** Installation & Inspection, **Parker Compression Fittings**, **Pipes & Fittings**, **PSV Inspection**, **Boiler** Operation, Maintenance & Inspection, **Root Cause Failure Analysis**, **Tank** Design & Engineering, **Tank Shell**, **Tanks & Tank Farms**, **Vacuum Tanks**, **Gas Turbine** Operating & Maintenance, **Diesel Engine**, **Engine Cycles**, **Governors & Maintenance**, **Crankshafts** & Maintenance, **Lubrication** System Troubleshooting & Maintenance, **Engines/Drivers**, **Motor** Failure Analysis & Testing, **Motor** Predictive Maintenance, **Engine** Construction & Maintenance, **HP Fuel Pumps & Maintenance**, **Fired Equipment** Maintenance, Combustion **Techniques**, **Process Heaters**, Glass Reinforced Epoxy (**GRE**), Glass Reinforced Pipes (**GRP**), Glass Reinforced Vent (**GRV**), **Mechanical Pipe Fittings**, **Flange Joint Assembly**, Adhesive Bond Lamination, **Butt Jointing**, **Joint & Spool Production**, **Isometric Drawings**, **Flange Assembly** Method, **Fabrication & Jointing**, Jointing & Spool Fabrication, **CAESAR**, **Pipe Stress Analysis**, **Pipe Cuttings**, **Flange Bolt Tightening** Sequence, **Hydro Testing**, **Pump** Technology, Fundamentals of **Pumps**, **Pump** Selection & Installation, **Centrifugal Pumps & Troubleshooting**, **Reciprocating & Centrifugal Compressors**, **Screw Compressor**, **Compressor** Control & Protection, **Gas & Steam Turbines**, **Turbine** Operations, **Gas Turbine** Technology, **Valves**, **Process Control Valves**, **Bearings & Lubrication**, Advanced **Machinery Dynamics**, **Rubber Compounding**, **Elastomers**, **Thermoplastic**, **Industrial Rubber Products**, **Rubber** Manufacturing Systems, **Heat Transfer**, **Vulcanization Methods**, **Process Plant Shutdown & Turnaround**, **Professional Maintenance Planner**, **Thermal Power Plant** Operation & Maintenance, **Heat Transfer**, **Machine Design**, **Fluid Mechanics**, **Heating & Cooling Systems**, **Heat Insulation Systems**, **Heat Exchanger & Cooling Towers**, **Mechanical Erection**, **Heavy Rotating Equipment**, Material Unloading & Storage, Commissioning & Start-Up. Further, he is also well-versed in MS project & AutoCAD, EPC Power Plant, Power Generation, Combined Cycle Powerplant, Leadership & Mentoring, Project Management, Strategic Planning/Analysis, Construction Management, Team Formation, Relationship Building, Communication, Reporting and Six Sigma. He is currently the **Project Manager** wherein he is managing, directing and controlling all activities and functions associated with the domestic heating/cooling facilities projects.

During his life career, Mr. Rovas has gained his practical and field experience through his various significant positions and dedication as the **EPC Project Manager**, **Field Engineer**, **Thermal Insulation Engineer**, **Mechanical Engineer**, **Preventive Maintenance Engineer**, **Senior Thermal Insulation Technician**, **Researcher**, **Instructor/Trainer**, **Telecom Consultant** and **Consultant** from various companies such as the Podaras Engineering Studies, Metka and Diadikasia, S.A., **Hellenic Petroleum Oil Refinery** and COSMOTE.

Mr. Rovas has a **Master's** degree in **Energy Production & Management** and **Mechanical Engineering** from the **National Technical University of Athens** (**NTUA**), **Greece**. Further, he is a **Certified Instructor/Trainer**, a **Certified Maintenance and Reliability Professional** (**CMRP**) from the Society of Maintenance & Reliability Professionals (**SMRP**), **Certified Project Management Professional** (**PMI-PMP**), **Certified Six Sigma Black Belt**, **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**), **Certified Construction Projects Contractor**, **Certified Energy Auditor** and a **Chartered Engineer**. Moreover, he is an active member of **American Society for Quality**, Project Management Institute (**PMI**), **Body of Certified Energy Auditors** and **Technical Chamber of Greece**. He has further received various recognition and awards and delivered numerous trainings, seminars, courses, workshops and conferences internationally.

Training Fee

Istanbul	**US$ 6,250** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	**US$ 5,750** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Al Khobar	**US$ 5,750** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Abu Dhabi	**US$ 5,750** 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$ 715 per Delegate + **VAT**.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course 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	***Reliability Fundamentals: Leadership Foundation*** *Benefits of Reliability Engineering ● Interrelationship of Safety, Quality & Reliability ● Reliability Engineer Leadership Responsibilities ● Reliability Engineer Role & Responsibilities in the Product Lifecycle ● Project Management in Reliability Engineering ● Function of Reliability in Engineering ● Ethics in Reliability Engineering ● Supplier Reliability Assessments ● Performance Monitoring*
0930 – 0945	*Break*
0945 – 1100	***Reliability Fundamentals: Reliability Foundations*** *Basic Reliability Terminology ● Drivers of Reliability Requirements & Targets ● Corrective & Preventive Action (CAPA) ● Root Cause Analysis ● Product Lifecycle Engineering Stages*
1100 – 1230	***Reliability Fundamentals: Reliability Foundations (cont'd)*** *Economics of Product Maintainability & Availability ● Cost of Poor Reliability ● Quality Triangle ● Six Sigma Methodologies ● Systems Engineering & Integration*
1230 – 1245	*Break*
1245 – 1400	***Risk Management: Identification*** *Risk Management Techniques ● Risk Assessment ● Types of Risk*
1400 – 1410	***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*
1410 – 1430	***Quiz***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	*Review of Day 1*
0830 – 0930	***Risk Management: Analysis*** *Fault Tree Analysis (FTA) ● Failure Modes & Effects Analysis (FMEA) ● Common Mode Failure Analysis ● Hazard Analysis ● Risk Matrix ● System Safety*
0930 – 0945	*Break*
0945 – 1100	***Risk Management: Mitigation***
1100 – 1230	***Probability & Statistics for Reliability: Basic Concepts*** *Basic Statistics ● Basic Probability Concepts ● Probability Distributions ● Probability Functions*
1230 – 1245	*Break*
1245 – 1400	***Probability & Statistics for Reliability: Basic Concepts (cont'd)*** *Sampling Plans for Statistics & Reliability Testing ● Statistical Process Control (SPC) & Process Capability Studies (Cp, Cpk, P and Ppk) ● Confidence & Tolerance Intervals*
1400 – 1410	***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*
1410 – 1430	***Quiz***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	*Review of Day 2*
0830 – 0930	***Probability & Statistics for Reliability: Data Management*** *Sources & Uses of Reliability Data ● Types of Data ● Data Collection Methods*
0930 – 0945	*Break*
0945 – 1100	***Probability & Statistics for Reliability: Data Management (cont'd)*** *Data Summary & Reporting ● Failure Analysis Methods ● Failure Reporting, Analysis & Corrective Action System (FRACAS)*
1100 – 1230	***Reliability Planning, Testing & Modelling: Planning*** *Reliability Test Strategies ● Environmental Factors and use Conditions ● Failure Consequence ● Failure Criteria ● Test Environment*
1230 – 1245	*Break*
1245 – 1400	***Reliability Planning, Testing & Modelling: Testing*** *Accelerated Life Tests ● Stress Screening ● Qualification/Demonstration Testing ● Degradation (Wear-to-Failure) Testing ● Software/Firmware Reliability ● Software Testing*
1400 – 1410	***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*
1410 – 1430	***Quiz***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	*Review of Day 3*
0830 – 0930	***Reliability Planning, Testing & Modelling: Modeling*** *Reliability Block Diagrams & Models ● Physics of Failure & Failure Mechanisms ● Failure Models*
0930 – 0945	*Break*
0945 – 1100	***Reliability Planning, Testing & Modelling: Modeling (cont'd)*** *Reliability Prediction Methods ● Design Prototyping*
1100 – 1230	***Lifecycle Reliability: Reliability Design Techniques*** *Design Evaluation Techniques (Validation & Verification) ● Stress-Strength Analysis ● Design of Experiments (DOE) ● Reliability Optimization*
1230 – 1245	*Break*
1245 – 1400	***Lifecycle Reliability: Reliability Design Techniques (cont'd)*** *Human Factors ● Design for X (DFX) ● Design for Reliability (DfR)*
1400 – 1410	***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*
1410 – 1430	***Quiz***
1430	*Lunch & End of Day Four*

Day 5

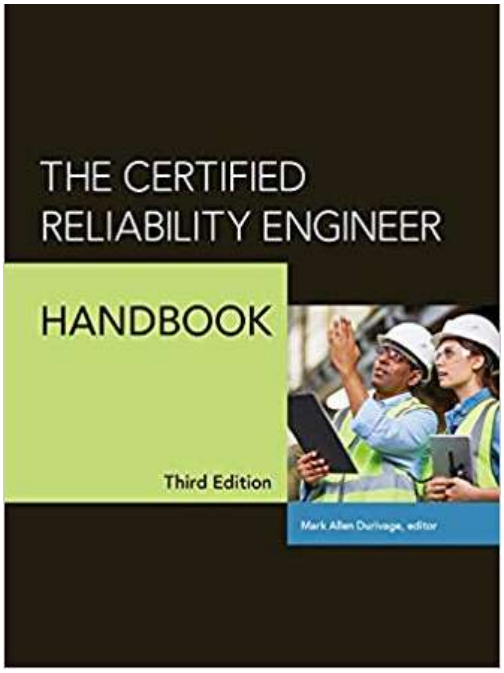
0730 – 0800	*Review of Day 4*
0800 – 0930	***Lifecycle Reliability: Parts & Systems Development*** *Materials, Components, Equipment & Software Selection Techniques*
0930 – 0945	*Break*
0945 – 1100	***Lifecycle Reliability: Parts & Systems Development (cont'd)*** *Parts Standardization & System Simplification*
1100 – 1230	***Lifecycle Reliability: Maintainability*** *Maintenance Strategies ● Preventive Maintenance (PM) Analysis*
1230 – 1245	*Break*
1245 – 1345	***Lifecycle Reliability: Maintainability (cont'd)*** *Corrective Maintenance Analysis*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

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.

Book(s)

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



Title : The Certified Reliability Engineer Handbook
ISBN : 9788174890580
Author : Mark Allen Durivage
Publisher : ASQ Quality Press

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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