

**COURSE OVERVIEW ME0138**  
**Application of Standards in Boiler, Pressure Vessel & Piping Systems**

**Course Title**

Application of Standards in Boiler, Pressure Vessel & Piping Systems

**Course Date/Venue**

December 22-26, 2024/Abu Dhabi Meeting Room, The Tower Plaza Hotel, Dubai, UAE

**Course Reference**

ME0138

**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 intended to introduce codes for construction such as ASME boiler and pressure vessel code and ASME piping codes. It will show the similarities and differences between codes and how standards such as B16, MSS, ASTM, and ISO fit into the various codes.



The course will also demonstrate how the different methods of pressure rating of components are used. The course participants will work examples using the four major methods. These methods are pressure rating by table, schedule, proof testing, and computation. The course will give examples of how to work both with components fully complying and with deviations to fit specific cases.



During this interactive course, participants will learn the differences between different standards rating organizations; the history behind various product standards; the appropriate needed product standard; the pressure temperature rating tables; the class rating systems and the method of proof testing; and the proof test documentation and comparison method of pressure rating.

### Course Objectives

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

- Apply and gain an in-depth knowledge on the application of standards in boiler, pressure vessel and piping systems
- Determine which code applies to their projects and which standards fit each code
- Relate the differences between different standards rating organizations
- Discuss the history behind various product standards
- Specify the appropriate needed product standard
- Illustrate pressure temperature rating tables
- Use class rating systems and apply the method of proof testing
- Evaluate proof test documentation and the comparison method of pressure rating
- Develop and use “unlisted components” and distinguish the fatigue decisions as compared to pressure design
- Compute pressure ratings efficiently

### 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, sample video clips of the instructor’s actual lectures & practical sessions during the course conveniently saved in a **Tablet PC**.

### Who Should Attend

This course provides an overview of all significant aspects and considerations on the design, fabrication, inspection and repair of oil and gas pipeline code in accordance with the international standard ASME B31.4-B31.8 for those who are involved in engineering or technical aspects of pipelines, including designers, engineers, engineering managers, construction supervisors, operations supervisors, inspectors, code compliance managers, asset integrity managers, pipeline safety regulators, consultants and other technical staff. Further, the course is also suitable for those new to pipelines, as well as providing a good refresher for experienced personnel.

### 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.

### Accommodation


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

**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**

Certificates are accredited by the following international accreditation organizations:-


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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 **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.

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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**. 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.



**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:



**Dr. Maged Elhefnawey**, PhD, MSc, BSc, ASNT (RT-PT-MT & UT), SMRP-CMRP, is a **Senior Mechanical & Maintenance Engineer** with **extensive years** of experience within the **Power & Water Utilities** and other **Energy Sectors**. His expertise widely covers in the areas of **Maintenance Management Best Practices, Rotating Equipment Reliability Optimization, Maintenance Planning & Scheduling, Practical Machinery Vibration, Vibration Techniques, 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, Mechanical & Rotating Equipment Troubleshooting, Preventive Maintenance, Predictive Maintenance, Reliability Centered Maintenance (RCM), Condition Based Monitoring (CBM), FMEA, Rotating Equipment Selection, Operation, Maintenance, Inspection & Troubleshooting, Maintenance Management & Planning, Tank Farm Operations & Performance, Pumps, Motors, Turbo-expanders, Gears, Compressors & Turbines, Heat Exchanger, Variable Speed Drives, Seals, Valves, Dry Seal, Fired Heaters, Air Coolers, Crude Desalter, Process Vessels, Gas Transmission & Piping Distribution System (ASME B31.8), Cathodic Protection, Welding Technology, Material Selection Codes & Standards, Pipe Stress Analysis, Boiler Plant Operation, Mechanical Engineering, Piping, Pipelines, Lubrication Technology, Vibration Analysis, Power System Hydraulics, Security Detection Systems & Operation, Process Plant Equipment and Troubleshooting Process Operations.**

During his career life, Dr. Maged has gained his expertise and thorough practical experience through several positions and dedication as the Acting **Department Head, Section Head Projects Engineer, Mechanical Engineer, Reliability Maintenance Engineer** and **Mechanical Supervisor** for various international companies and institutions such as the Gulf of Suez Petroleum Co. (GUPCO), British Petroleum (BP), BETROBEL, **KNPC**, SAIPEM Engineering, Natural Gas Pipeline, TRACTEBEL Engineering, Suez and TransGas Company to name a few. He also worked as **Mechanical/NDT Supervisor** wherein he was responsible for executing the scheduled inspections for welding, coating, pipeline, painting, hydrotest of pipeline & piping and fabrication and assembly.

Dr. Maged has **PhD** and **Master's** degree in **Mechanical Production Engineering** and a **Bachelor's** degree in **Mechanical Power Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified ASNT Level II Inspector** in Radiography Testing (RT), Liquid Penetrant Testing (PT), Magnetic Particle Testing (MT) and Ultrasonic Testing (UT), a **Certified Maintenance and Reliability Professional (CMRP)** from the Society of Maintenance & Reliability Professionals (SMRP), **published numerous academic papers** and delivered various trainings, courses, workshops, seminars 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.

### 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: Sunday, 22<sup>nd</sup> of December 2024**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction</b> Fundamentals and History of Codes and Standards Development of Standards and Codes
0930 – 0945	Break
0945 – 1130	<b>Pressure Design Basics</b> Review of Different Methods (Formulae) of Different Codes Including Workshop in the Use of and Differences of those Methods Including Rationale
1130 – 1230	<b>Review of Other Concerns in Codes &amp; Standards Requirements</b> Fatigue Design Requirements, Material Selection Including the Differences Between SA and a Designations, Fabrication and Examination Requirements
1230 – 1245	Break
1245 – 1420	<b>Listed Vs. Unlisted Components</b> How and Why the Various Codes List their Acceptable Standards
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day One

#### **Day 2: Monday, 23<sup>rd</sup> of December 2024**

0730 – 0930	<b>Pressure Rating</b> What it is and What it Means. How it May Vary With Process Conditions
0930 – 0945	Break
0945 – 1100	<b>Overview of the Various Rating Methods</b> Tables • Testing • Comparison • Computation
1100 – 1230	<b>Tables</b> How they are Developed, Reading, Interpolating
1230 – 1245	Break
1245 – 1420	<b>Testing</b> Types • Weaknesses, Strengths, Workshops
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two



**Day 3: Tuesday, 24<sup>th</sup> of December 2024**

0730 – 0930	<b>Workshops</b>
0930 – 0945	Break
0945 – 1100	<b>By Comparison Method</b> B16.11
1100 – 1230	<b>Computational Methods</b> Unlisted Components
1230 – 1245	Break
1245 – 1420	<b>Workshop in Computation</b>
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4: Wednesday, 25<sup>th</sup> of December 2024**

0730 – 0930	<b>Review of Various Standards</b> B16 • MSS • PFS
0930 – 0945	Break
0945 – 1100	<b>General Standards</b> Thread • Straight • Taper Threads
1100 – 1230	<b>General Standards (cont'd)</b> Thread • Straight • Taper Threads (cont'd)
1230 – 1245	Break
1245 – 1420	<b>Picking the Proper Standard</b> B16.5 , B16.47 MSS Sp 44 Sp 51 for Example
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

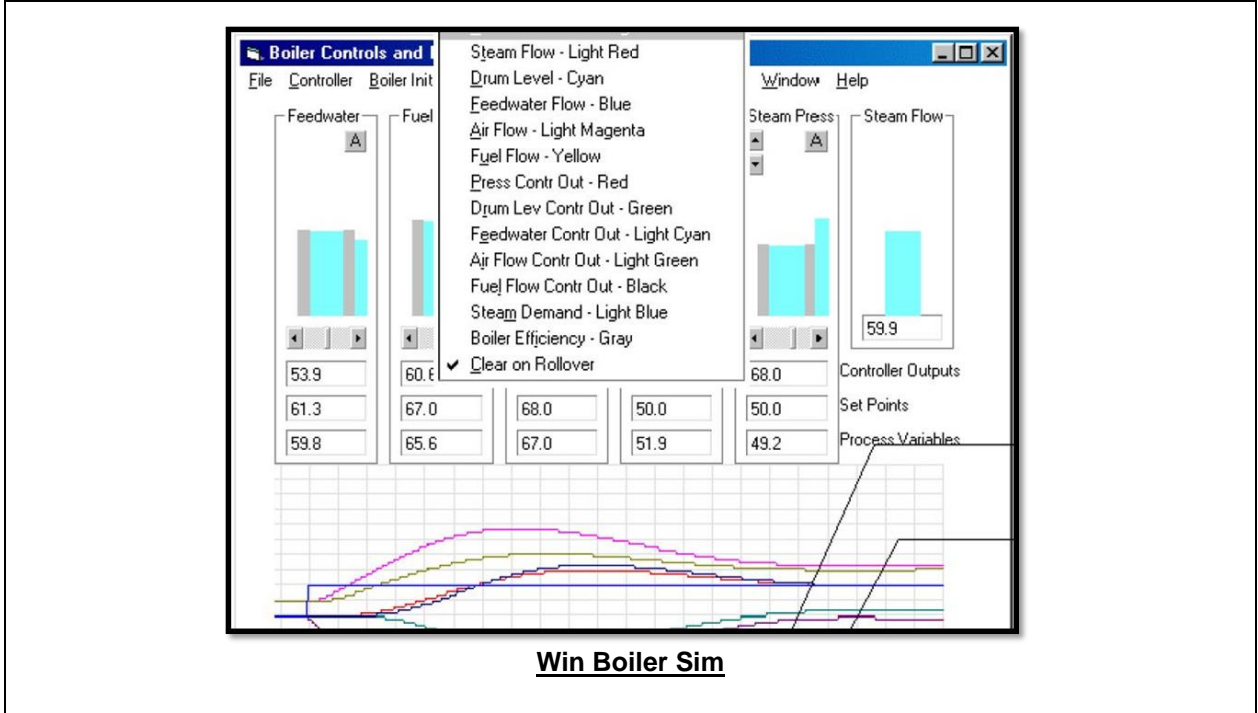
**Day 5: Thursday, 26<sup>th</sup> of December 2024**

0730 – 0930	<b>Special Fittings</b>
0930 – 0945	Break
0945 – 1100	<b>Special Flanges</b>
1100 – 1230	<b>Review of What is Happening in Standards</b>
1230 – 1245	Break
1245 – 1345	<b>Open Forum</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

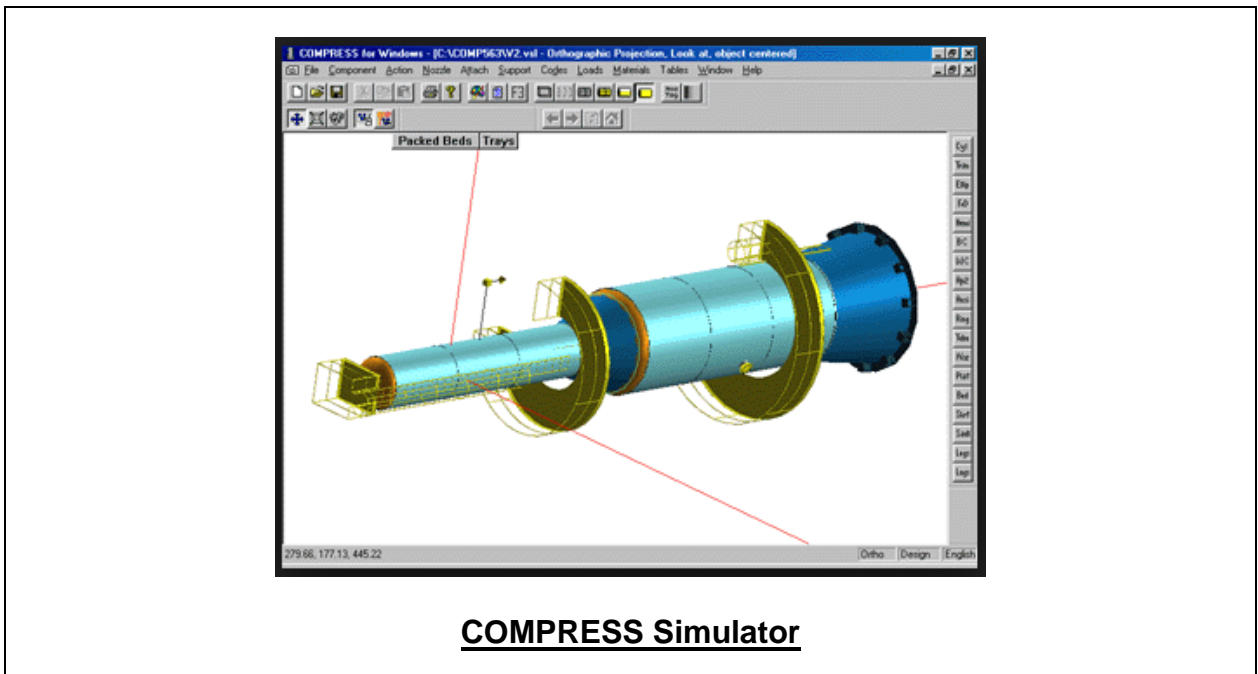


**Simulator (Hands-on Practical Sessions)**

Practical session 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 simulator “Win Boiler Sim” and “COMPRESS”.



**Win Boiler Sim**



**COMPRESS Simulator**

**Course Coordinator**

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