COURSE OVERVIEW ME0045
ASME BPV Code, Section VIII, Division 1: Pressure Vessel Combo Course

Course Title
ASME BPV Code, Section VIII, Division 1: Pressure Vessel Combo Course

Course Date/Venue
July 27-31, 2025/The Florentine Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

Course Reference
ME0045

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 ASME Boiler and Pressure Vessel Code Section 8.D.1. It covers the development and significance of ASME BPVC code; the ASME BPVC Section VIII Divisions 1, 2, and 3; the scope and applicability of Division and types of pressure vessels; the comparison of Division 2 and 3 and their differences in design rules, materials and inspection requirements; the basic design principles and the design of shells under internal pressure and heads and formed sections; the opening and reinforcements, flange and gasket design, external pressure design and considerations; and the materials for pressure vessels.

During this interactive course, participants will learn the materials, design, welded joints, PWHT and welded connections of pressure vessels fabricated by welding; the examination and inspection techniques for radiography, ultrasonic testing and other non-destructive tests; the pressure testing procedures covering hydrostatic and pneumatic tests, safety protocols and execution; the pressure vessels fabricated by forging and brazing; the pressure vessels constructed of carbon and low alloy steels, non-ferrous materials and high alloy steel; the pressure vessels constructed of ferritic steel enhanced by heat treatment and of materials with higher allowable stresses at low temperature; the quality control system, recent updates and amendments; the pressure vessel repairs and alterations; and the integration with other ASME sections.

Course Objectives

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

- Apply and gain an in-depth knowledge on ASME boiler and pressure vessel code Section 8.D.1
- Discuss the development and significance of ASME BPVC code as well as the ASME BPVC Section VIII Divisions 1, 2, and 3
- Identify the scope and applicability of Division and types of pressure vessels as well as compare Division 2 and 3 and their differences in design rules, materials and inspection requirements
- Discuss basic design principles and illustrate the design of shells under internal pressure including heads and formed sections
- Recognize opening and reinforcements, flange and gasket design, external pressure design and considerations and materials for pressure vessels
- Identify materials, design, welded joints, PWHT and welded connections of pressure vessels fabricated by welding
- Carryout examination and inspection techniques for radiography, ultrasonic testing and other non-destructive tests
- Apply pressure testing procedures covering hydrostatic and pneumatic tests, safety protocols and execution
- Describe pressure vessels fabricated by forging and brazing as well as pressure vessels constructed of carbon and low alloy steels, non-ferrous materials and high alloy steel
- Discuss pressure vessels constructed of ferritic steel enhanced by heat treatment and of materials with higher allowable stresses at low temperature
- Recognize quality control system and recent updates and amendments
- Apply pressure vessel repairs and alterations and integration with other ASME sections

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 ASME VIII pressure vessel for those who are involved in the design, fabrication and testing of pressure vessels and for engineers who want to know more or move to this very interesting engineering area. Further, engineers involved in maintenance, repair and flaw evaluation of pressure vessels will also have a need for 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. Steve Magalios, CEng, PGDip, MSc, BSc, is a **Senior Mechanical & Maintenance Engineer** with almost **30 years** of extensive **On-shore/Offshore** experience in the **Oil & Gas**, **Construction**, **Refinery** and **Petrochemical** industries. His expertise widely covers in the areas of **Pressure Vessel** Design, Fabrication & Testing, **ASME Boiler & Pressure Vessel Code**, **Pressure Vessel & Piping Systems**, **Preventive & Predictive** Maintenance, **Reliability Centered** Maintenance, **Applied Maintenance** Management, **Reliability** Modelling, **Reliability** Techniques, **Reliability Design** Techniques, Advanced **Root Causes** Analysis & Techniques, **Reliability** Management, **Pipeline Hot Tapping**, **Hot Tapping** Equipment, **Hot Tapping Operation**, **Boiler** Inspection & Maintenance, **Boiler** Systems, **Boiler** instrumentation & Controls, **Boiler** Start-up & Shutdown, **Boiler** Operation & Steam System Management, **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**, **Welding** Engineering, **Fabrication** & Inspection, **Welding** Techniques, Practical **Welding** Technology, **Welding** Inspection, **Welding & Machine Shop**, **Welding & Machining**, **Welding** Types & Applications, **Welding** Safety, **Welding** Defects Analysis, **TIG & Arc Welding**, **Shielded Metal Arc Welding**, **Gas Tungsten & Gas Metal Arc Welding**, **Welding** Procedure Specifications & Qualifications (WPS & WPQ), **Aluminium Welding**, Safe **Welding**, International **Welding Codes**, **Welding Procedure** Specifications, **Welding & Brazing**, **Welder** Performance Qualification, **Pipeline** Operation & Maintenance, **Pipeline** Systems, **Pipeline** Design & Construction, **Pipeline** Repair Methods, **Pipeline** Engineering, Pipeline Integrity Management System (**PIMS**). Currently, he is the **Chartered Professional Surveyor Engineer & Urban-Regional Planner** wherein he is deeply involved in providing exact data, measurements and determining properly boundaries. He is also responsible in preparing and maintaining sketches, maps, reports and legal description of surveys.

During his career, Mr. Magalios has gained his expertise and thorough practical experience through challenging positions such as a **Project Site Construction Manager**, **Supervision Head/Construction Manager**, **Construction Site Manager**, **Project Manager**, **Deputy PMS Manager**, **Head of the Public Project Inspection Field Team**, **Technical Consultant**, **Senior Consultant**, **Consultant/Lecturer**, **Construction Team Leader**, **Lead Pipeline Engineer**, **Project Construction Lead Supervising Engineer**, **Lead Site Engineer**, **Senior Site Engineer Lead Engineer**, **Senior Site Engineer**, **Mechanical Engineer**, **R.O.W. Coordinator**, **Site Representative**, **Supervision Head**, **Contractor**, Client Site Representative and Acting Client Site Representative for international Companies such as the Public Gas Corporation, Penspen International Limited, Eptista Servicios de Ingeneria S.I., J/V ILF Pantec TH. Papaioannou & Co. – Emenergy Engineering, J/V Karaylannis S.A. – Intracom Constructions S.A., Ergaz Ltd., Alkyonis 7, Palaeo Faliro, Piraeus, Elpet Valkaniki S.A., Asprofos S.A., J/V Depa S.A. just to name a few.

Mr. Magalios is a **Registered Chartered Engineer** and has **Master** and **Bachelor** degrees in **Surveying Engineering** from the **University of New Brunswick**, **Canada** and the **National Technical University of Athens**, **Greece**, respectively. Further, he is currently enrolled for **Post-graduate** in **Quality Assurance** from the **Hellenic Open University**, **Greece**. He has further obtained a Level 4B Certificates in Project Management from the National & Kapodistrian University of Athens, Greece and Environmental Auditing from the Environmental Auditors Registration Association (EARA). Moreover, he is a **Certified Instructor/Trainer**, a **Chartered Engineer** of Technical Chamber of Greece and has delivered numerous trainings, workshops, seminars, courses 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.

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 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, 27th of July 2025***
0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Course Introduction & Objectives*** *Overview, Goals & Expected Outcomes*
0930 – 0945	*Break*
0945 – 1030	***History & Evolution of the ASME BPVC*** *The Need, Development & Significance of The Code*
1030 – 1130	***Overview of ASME BPVC Section VIII*** *Introduction to Divisions 1, 2 & 3*
1130 – 1215	***Scope & Applicability of Division 1*** *Defining the Boundaries of D.1 – which Vessels it covers & which it does not*
1215 – 1230	*Break*
1230 – 1315	***Types of Pressure Vessels Covered*** *Categories, Configurations & their Specific Considerations*
1315 – 1420	***Comparison with Division 2 & 3*** *Differences in Design Rules, Materials & Inspection Requirements*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: **Monday, 28th of July 2025**

0730 – 0830	***Basic Design Principles*** *Materials, Design Stress & Factors of Safety, Loadings*
0830 – 0930	***Design of Shells Under Internal Pressure*** *Calculations, Thickness Determinations & Joint Efficiencies, Stresses*
0930 – 0945	*Break*
0945 – 1100	***Design of Heads & Formed Sections*** *Types of Heads, their Design Parameters & Considerations*
1100 – 1215	***Opening & Reinforcements*** *Design around Nozzles, Manways & Other Penetrations, Ligaments, Lugs, Supports*
1215 – 1230	*Break*
1230 – 1300	***Flange & Gasket Design*** *Bolting, Gasket Selection & Design as per ASME Standards*
1300 - 1330	***External Pressure Design & Considerations*** *Effects of Vacuum & External Loads & their Design Implications*
1330 – 1420	***Materials for Pressure Vessels*** *Material Specifications, Allowable Stress Values & Sourcing*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: **Tuesday, 29th of July 2025**

0730 – 0830	***Pressure Vessels Fabricated by Welding*** *General, Materials, Design, Welded Joints, PWHT, Welded Connections*
0830 – 0930	***Examination & Inspection Techniques*** *Radiography, Ultrasonic Testing & Other Non-Destructive Tests*
0930 – 0945	*Break*
0945 – 1100	***Pressure Testing Procedures*** *Hydrostatic & Pneumatic Tests, Their Safety Protocols & Execution*
1100 – 1215	***Pressure Vessels Fabricated by Forging*** *General, Materials, Design, Head Design, Corrosion Allowance, Inspection & Tests*
1215 – 1230	*Break*
1230 – 1300	***Pressure Vessels Fabricated by Brazing*** *General, Materials, Design, Qualification of Brazed Joints, Corrosion, Openings – Brazed Connections, Inspection & Tests*
1300 – 1345	***Pressure Vessels Constructed of Carbon and Low Alloy Steels*** *General, Materials, Design, Welded Joints, Allowable Stresses*
1345 - 1420	***Pressure Vessels Constructed of Carbon and Low Alloy Steels (cont'd)*** *Thickness, PWHT, Low Temperature Operation, Inspection & Tests*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: **Wednesday, 30th of July 2025**

0730 – 0830	***Pressure Vessels Constructed of Non-Ferrous Materials*** *General, Materials, Design, Welded Joints, Allowable Stresses*
0830 – 0900	***Pressure Vessels Constructed of Non-Ferrous Materials (cont'd)*** *Thickness, PWHT, Inspection & Tests*
0900 – 0930	***Pressure Vessels Constructed of High Alloy Steel*** *General, Materials, Design, Welded Joints, Allowable Stresses*
0930 – 0945	*Break*

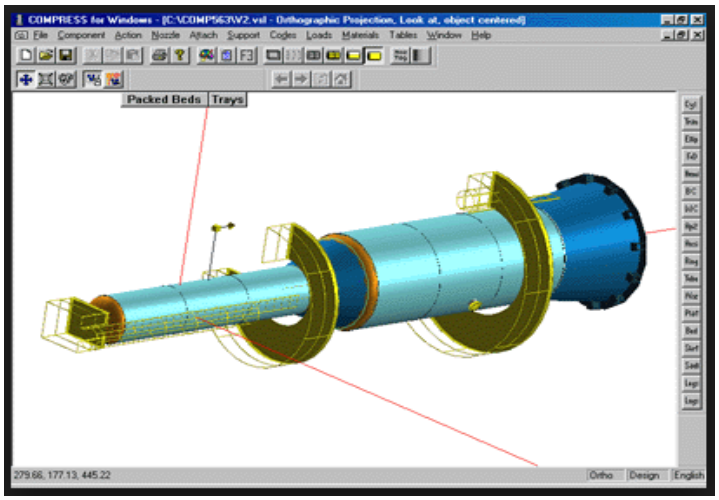
0945 – 1100	***Pressure Vessels Constructed of High Alloy Steel (cont'd)*** *Thickness, PWHT, Inspection & Tests*
1215 – 1230	*Break*
1230 – 1300	***Pressure Vessels Constructed of Ferritic Steel Enhanced by Heat Treatment*** *General, Materials, Design, Allowable Stresses, Corrosion Allowance, PWHT, Inspection & Tests*
1300 - 1420	***Pressure Vessels Constructed of Materials with Higher Allowable Stresses at Low Temperature*** *General, Materials, Design, Welded Joints, Thickness, PWHT, Inspection & Tests*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5: ***Thursday, 31st of July 2025***

0830 - 0930	***Quality Control System*** *Features included in the QCS, Authority & Responsibility, Nonconformities, Records*
0930 – 0945	*Break*
0945 – 1130	***Recent Updates & Amendments*** *Staying Updated with the Latest Code Revisions*
1130 – 1230	***Pressure Vessel Repairs & Alterations*** *How Repairs are Addressed within the ASME Standards*
1230 – 1245	*Break*
1245 – 1345	***Integration with Other ASME Sections*** *Relation with other Sections Like Piping, B31 Codes, etc.*
1345 – 1400	***Course Conclusion***
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 "COMPRESS" simulator.



COMPRESS Simulator

Course Coordinator

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