COURSE OVERVIEW ME0047-4D
Design, Analysis & Fabrication of Pressure Vessels (ASME Code Section VIII, Division 2)

Course Title
Design, Analysis & Fabrication of Pressure Vessels (ASME Code Section VIII, Division 2)

Course Date/Venue
November 11-14, 2024/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
ME0047-4D

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.

Pressure vessels are widely used throughout industry and contain very large concentration of energy. Despite the fact that pressure vessels design and installation comply with the recognized industrial standards, there continue to be serious pressure equipment failures. There are many reasons for pressure equipment failure: degradation and thinning of materials with usage, aging, hidden flaws during fabrication, etc. Fortunately periodic testing and internal and external inspections significantly improve the safety of a pressure vessel or facility. A good testing and inspection program is based on development of procedures for specific industries or types of vessels.

This course is designed to provide an introductory yet comprehensive treatment of the significant requirements for the design, fabrication, inspection and testing of pressure vessels as well as post construction maintenance and repair. For new construction, the participants will learn how to apply the rules of the ASME Code Section VIII, Division 1. For post construction, the participants will become familiar with the rules of the National Board Inspection Code, API 510, API 579 and several other documents related to pressure vessel inspection, flaw evaluation and repair. Example problems will be used throughout to demonstrate both, the application of the rules for new pressure vessel design and post construction vessel inspection, flaw evaluation and repair.

Course Objectives

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

- Apply and gain proper techniques and good working knowledge on design, fabrication, inspection, flaw evaluation and repair of pressure vessels
- Discuss the requirements of ASME code including the material requirements of pressure vessels
- Identify the design for internal and external pressure, design of formed heads and discuss the ASME Code Case 2286 including the design of openings, external loadings and flat covers
- Carryout stress allowable, stress categories, documentation and stamping as well as over-pressure test
- Implement the fabrication rules and apply pressure test and documentation requirements effectively
- Employ the inspection, flaw evaluation and repair of pressure vessels
- Discuss the API 579, ASME post construction activities and PVRC activities

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 of those who desire to update their knowledge of the latest industry and Code requirements for pressure vessel design and the longer-term aspects and issues of inspection and repair. The course will benefit individuals involved in design, fabrication, inspection or purchase of pressure vessels and those responsible safety and integrity of in-service pressure vessels.

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 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:-

- 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.

- 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.

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. Geoff Kaschula is a **Senior Inspection Engineer** with over **45 years** of extensive experience within the **Oil & Gas**, **Petrochemical**, **Process** and **Power Industries**. His fields of specialization widely cover in the areas of **Design**, **Fabrication**, **Construction**, **Installation**, **Commissioning**, **Inspection** & **Maintenance** of **Process Equipment** such as **Boilers**, **Pressure Vessels**, **Piping Systems**, **Structures** & **Storage Tanks**; **Condition Assessment** of Rotating & Auxiliary Equipment like **Compressors**, **Steam Turbines**, **Pumps**, **Heat Exchangers** & **Valves**; Risk Based Inspection (**RBI**), Fitness-For-Service (**FFS**), **In-Service Inspection & Condition** Assessment, **Steam Drums & Pressure Vessels**, **Tanks**, **Piping** Inspection, **Welding & Fabrication** Engineering, **Welding** Technology, Fabrication, **Welding** Inspection, Advanced Integrity Management for **Corrosion** & Inspection, **Failure Analysis**, Flaw Evaluation, Remnant Life Determination, Capacity Reviews for Process and Power Equipment, Asset Management and Project Management. He has also worked extensively with international industry standards such as ASME VIII div 1 & 2, TEMA, BS/EN 13445, BS/EN 12952, API 650, API 653, ANSI B31.1, ANSI B31.3, PD5500, AWS D1.1, SANS 10162, just to name a few. Mr. Kaschula is currently the **Director** of **RBI-Asset Management** wherein he provides technical support and consultancy services in the field of physical infrastructure asset management.

During his career life, Mr. Kaschula has gained his practical and field experience through his various significant positions and dedication as the **Director/Owner**, **Project Manager**, **QE Division Manager**, **Resident Inspection Engineer**, **Refurbishment Inspection Engineer**, **Inspection Engineer**, **Welding Engineer**, **QA/QC Engineer**, **Appointed Statutory Management Representative**, **Technical Assessor** and **Senior Instructor/Trainer** for numerous international companies like the Parsons Brinckerhoff Africa, Weltech CC., Projects Expedited (Pty) Ltd., Airtec Davidson (Pty) Ltd. and Hubert Davies,
Arnot & Hendrina Power Station, Projects Expedited, Airtech Davidson & the Department of Transport.

Mr. Kaschula has a **National Diploma** (**Welding Engineer**) and a **Registered Professional Technologist** and **International Welding Technologist**. Further, he is a **Certified Instructor/Trainer**, a **Certified API 510 Pressure Vessel Inspector**, a **Certified API 570 Piping Inspector**, a **Certified API 580 Risk Based Inspector**, a **Registered Inspector** & **Competent Person** for Boilers, Pressure Vessels & Pressure Equipment, an ISO 9001 Lead Auditor and a member of South African Institute of Welding. He has further delivered numerous trainings, courses, seminars, conferences and workshops internationally.

Course Fee

US$ 4,500 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 course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1: ***Monday, 11th of November 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Design, Fabrication, Inspection & Testing of New Pressure Vessels*** *Introduction to ASME Code • General Requirements • Material Requirements • Design for Internal Pressure*
0930 – 0945	*Break*
0945 – 1100	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Design of Formed Heads • Design for External Pressure • Code Case 2286*
1100 – 1215	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Design of Openings • Design for External Loadings • Design of Flat Covers*
1215 – 1230	*Break*
1230 – 1420	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Stress Allowables and Stress Categories • Documentation & Stamping • Over-Pressure Test*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 12th of November 2024***

0730 – 0930	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Fabrication Rules • NDE • Pressure Test Requirements*
0930 – 0945	*Break*
0945 – 1100	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Documentation Requirements PWHT • Tolerances • Documentation*
1100 – 1215	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Stamping Inspection Requirements • Pressure Relief Requirements Overpressure Testing Example Problems*
1215 – 1230	*Break*
1230 – 1420	***Design, Fabrication, Inspection & Testing of New Pressure Vessels (cont'd)*** *Discussion*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: Wednesday, 13th of November 2024

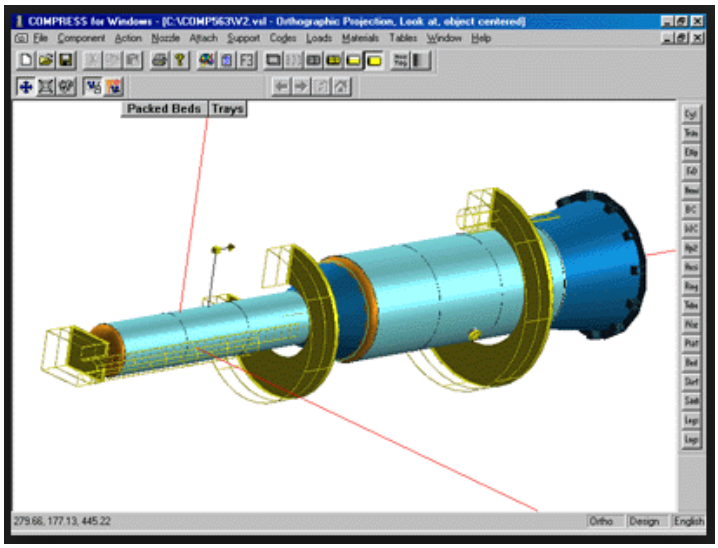
0730 – 0930	***Inspection, Flaw Evaluation & Repair of Pressure Vessels*** *Introduction to Post-Construction Codes & Standards • Administrative Requirements • Inspection Requirements • Fitness for Service Concepts • Evaluation of Corroded Areas*
0930 – 0945	*Break*
0945 – 1100	***Inspection, Flaw Evaluation & Repair of Pressure Vessels (cont'd)*** *Evaluation of Pitted Areas • Evaluation of Deformations*
1100 – 1215	***Inspection, Flaw Evaluation & Repair of Pressure Vessels (cont'd)*** *Introduction to Other Flaw Evaluation Methods • Stress Analysis Methods*
1215 – 1230	*Break*
1230 – 1420	***API579, Fitness for Service*** *Documentation*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: Thursday, 14th of November 2024

0730 – 0930	***ASME Post Construction Activities*** *Risk Based Inspection Document*
0930 – 0945	*Break*
0945 – 1100	***ASME Post Construction Activities (cont'd)*** *Repair Procedures • Bolted Flanges*
1100 – 1215	***PVRC Activities*** *Research Related to Post-Construction*
1215 – 1230	*Break*
1230 – 1345	***Example Problems*** *Discussion*
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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