COURSE OVERVIEW ME0470
ASME B31.4-B31.8: Oil & Gas Pipeline Code
Design, Fabrication, Inspection & Repair

Course Title
ASME B31.4-B31.8: Oil & Gas Pipeline Code: *Design, Fabrication, Inspection & Repair*

Course Reference
ME0470

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

Course Date/Venue

Session(s)	Date	Venue
1	January 27-31, 2025	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
2	April 20-24, 2025	Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA
3	July 13-17, 2025	TBA Meeting Room, Taksim Square Hotel, Istanbul, Turkey
4	October 12-16, 2025	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE

Course Description

This practical and highly-interactive course includes practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

Pipelines are surprisingly varied and complex. Using the ASME B31.4 and B31.8 Standards as a framework, this course covers a large number of other subjects vitally important to the safety and reliability of pipelines. It provides participants with broad, but detailed information that technical personnel involved in all phases of pipeline work, from design and engineering through operations, maintenance, and regulatory oversight need to know to ensure that their pipeline is safe and reliable.

The B31.8 and B31.4 pipeline Standards are unique among piping standards because they cover the entire life cycle, from design and construction, through operation, maintenance, and integrity management. Each standard contains introductory language that lays out its intent and scope.

The ASME B31 Code establishes a process of design for integrity that involves classifying stresses by significance for failure, establishing maximum allowable limits to avoid failure, identifying loads and calculating the stresses that result, and comparing the estimated stresses to the maximum allowable. Participants will learn where these concepts came from and how to apply them.

The course will provide participants with an overview of pipelines and the role of industry standards. The scope and intent of the natural gas and hazardous liquid standards are reviewed. Participants will be able to learn the design criteria and how to apply the allowable stresses.

Further, the course will also cover the various grades of line pipe and components including flanges and wrought fittings. The concepts of location classes and fracture control as part of pressure design requirements will be reviewed as well as the requirements for installation and hydrostatic testing of the completed pipelines will be covered.

Lastly, the course is devoted to operations and maintenance matters including evaluating and repairing injurious defects and the causes and prevention of corrosion. Offshore and other special pipelines as well as integrity management planning will also be discussed during the course.

Course Objectives

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

- Apply systematic techniques on the design, fabrication, inspection and repair of oil and gas pipeline code in accordance with the international standard ASME B31.4 and B31.8
- Describe the basic elements of pipeline design, construction and maintenance
- Employ the principles of safe pipeline design and operation and explain the cause and mode of pipeline failure
- Determine the considerations for material specifications, pipe manufacturing, and pipe joining
- Estimate pipeline stresses from external loadings
- Identify the factors that affect the optimal pipe size and operating pressure
- Evaluate pipeline defects and carryout pipeline repair techniques
- Recognize the elements of pipeline integrity and discuss how code requirements address pipeline issues

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 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 **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.

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. Tony Dimitry, PhD, MSc, BSc, is a **Senior Mechanical Engineer** with over **30 years** of industrial experience. His expertise covers **Vibration Analysis**, **Heat Exchanger**, **Siemens**, **Steam Turbine Maintenance**, **Electromechanical Maintenance**, **Machinery Alignment**, **Lubrication Technology**, **Blower & Fan**, **Shaft Repair**, **Safety Relief Valves**, **Pipelines**, **Piping**, **Pressure Vessels**, **Process Equipment**, **Diesel Engine & Crane Maintenance**, **Maintenance Management** (**Preventive**, **Predictive**, **Breakdown**), **Reliability Management**, **Condition-Based Monitoring**, **Rotating Equipment**, **Tanks & Tank Farms**, **Pneumatic System**, **Static Equipment**, **Failure Analysis**, **FMEA**, **Corrosion**, **Metallurgy**, Planning, Scheduling, Cost Control, Preventive and Predictive Maintenance. Currently, he is the Maintenance Manager of the PPC Incorporation wherein he is responsible for the maintenance and upgrade of all plant components, monitoring the thermal stresses and the remaining life of steam pipes, turbine casing, mills, fans and pumps. He is in-charge of the metallurgical failure analysis and the usage of fracture mechanics for determining crack propagation in impellers of turbines, assessing all alterations and developments for upgrading the plant.

During his career life, Dr. Dimitry was a **Senior Engineer** in **Chloride Silent** (**UK**) wherein he was responsible for the mechanical, thermal and electrical modelling of battery problems for electric vehicles and satellites as well as an **Operations Engineer** of the **National Nuclear Corporation** (**UK**) wherein he was responsible for the optimization of the plant. Prior to this, he was a **Professor** at the **Technical University of Crete** and an Assistant **Professor** of the **University of Manchester** (**UK**).

Dr. Dimitry has **PhD**, **Master** and **Bachelor** degrees in **Mechanical Engineering** from the **Victory University of Manchester** and the **University of Newcastle**, **UK** respectively. Further, he is a **Certified Instructor/Trainer,** a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and an associate member of the American Society of Mechanical Engineers (**ASME**) and Institution of Mechanical Engineers (**IMechE**).

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

Abu Dhabi	**US$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Al Khobar	**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.
Istanbul	**US$ 6,000** per Delegate + **VAT**. This rate includes Participants Pack (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	**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

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***ASME Code Introductory Concepts*** *What is a Transportation Pipeline ● Intent ● Scope*
0930 – 0945	*Break*
0945 – 1100	***Load Categories*** *Sustained, Occasional & Cyclical ● Restrained vs Unrestrained Piping ● Operational & Environmental Loads*
1100 – 1215	***Piping Stress Analysis*** *How Stresses are Calculated ● Allowable Stresses*
1215 – 1230	*Break*
1230 – 1420	***Piping Stress Analysis (cont'd)*** *Piping Flexibility Analysis*
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

0730 – 0930	***Pressure Design*** *Pressure Design Equation for Pipe ● Class Location & Other Design Factors*
0930 – 0945	*Break*
0945 – 1100	***Pressure Design (cont'd)*** *Fracture Control in Pressure Design*

1100 – 1215	***Fittings & Components*** *Flanges ● Butt Welding Components ● Fabricated Branches ● Valves*
1215 – 1230	*Break*
1230 – 1420	***Materials*** *Recognized Material Specifications ● Types of Pipe, How Pipe is Made ● Line Pipe Metallurgy*
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

0730 – 0930	***Welding*** *Weld Joint Details ● Weld Procedure Qualification & Welding Standards ● Avoidance of Weld Cracking*
0930 – 0945	*Break*
0945 – 1100	***Construction*** *Transmission Pipeline Installation ● Facilities (Pump Stations, Compressor Stations) ● Hydrostatic Testing*
1100 – 1215	***Operation & Maintenance, Repairs*** *Plans & Procedures ● Defects & Damage ● Pipeline Repairs*
1215 – 1230	*Break*
1230 – 1420	***Operation & Maintenance, Repairs (cont'd)*** *Inservice Welding ● Qualification of Pipeline Personnel (B31Q)*
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 Three*

Day 4

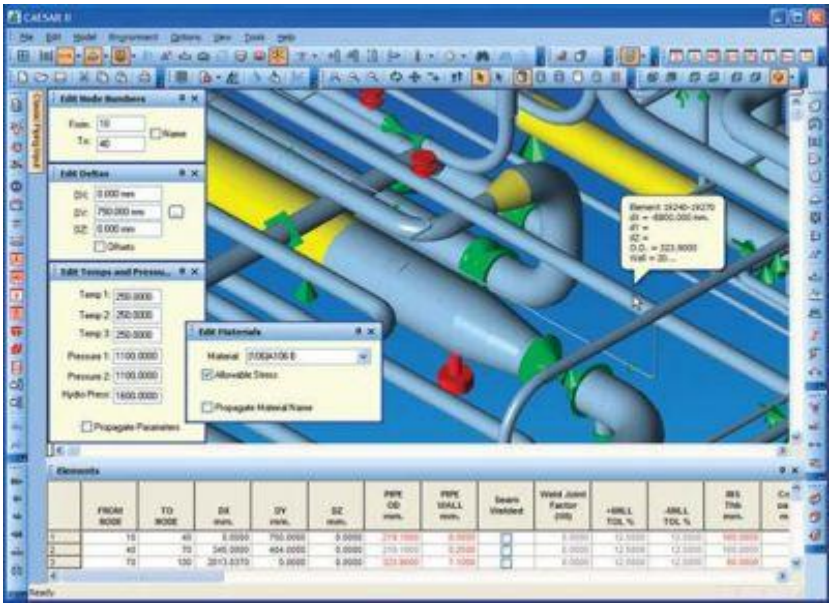
0730 – 0930	***Corrosion Control*** *Corrosion Causes ● Corrosion Control Requirements*
0930 – 0945	*Break*
0945 – 1100	***Corrosion Control (cont'd)*** *Evaluating Strength of Corroded Pipe (B31G)*
1100 – 1215	***Natural Gas Distribution Systems (cont'd)*** *Plastic Pipe ● Installation*
1215 – 1230	*Break*
1230 – 1420	***Offshore Systems*** *Exceptions to Main Standard Provisions*
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 Four*

Day 5

0730 – 0830	***Sour Service Systems*** *Metallurgical Considerations ● Health & Safety Hazard*
0830 – 0930	***Carbon Dioxide Systems*** *Exceptions to Main Standard Provisions*
0930 – 0945	*Break*
0945 – 1215	***Integrity Management Planning*** *B31.8-S & API 1160 ● Potential Impact Radius Concept*
1215 – 1230	*Break*
1230 – 1345	***Integrity Management Planning (cont'd)*** *Pipeline Integrity Threats ● Integrity Assessment Methods*
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*

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 "CAESAR II Software".



Course Coordinator

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