

COURSE OVERVIEW ME0122
Valves, Safety Relief Valves, Strainers & Steam Traps

Course Title

Valves, Safety Relief Valves, Strainers & Steam Traps

Course Date/Venue

Please refer to page 3

Course Reference

ME0122

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 in the class will be applied using the following practical methods: -

1) Valve Demo Kit: Various safety relief valves will be distributed in the class to the participants by the course instructor for hands-on demonstration. These demo kits will be returned to the instructor at the end of the training day.



(2) Valve Simulator: Participants will use in the class our state-of-the-art “Valve Sizing Simulator”, “Valve Simulator 3.0”, “Valvestar 7.2 Simulator” and “PRV2SIZE Simulator” to practice some of the skills learnt.

(3) Virtual Reality (VR) and Augmented Reality (AR) Practical Sessions: Practical sessions will be organized during the course using cutting-edge Virtual Reality (VR) and Augmented Reality (AR) technologies to provide participants with a highly immersive and interactive learning experience.



This course is designed to provide participants with a detailed and up-to-date overview of Valves, Relief Valves, Strainers and Steam Traps. Participants will gain a thorough understanding of the principles, applications, maintenance, and troubleshooting of these critical components in fluid and steam systems.

The course will cover the functions and difference among various types of valves covering gate valve, globe valve, plug valve, ball valve, check valve, needle valve, diaphragm valve and butterfly valve; the valve symbols and actuators; and the valve glossary and piping overview.

During this interactive course, participants will learn the safety relief valve types, functions and design features; the types of strainers comprising of temporary strainer, y-type strainer, mono-in-line strainer and duplex-strainer; the types of steam traps covering mechanical steam traps, thermostatic and fixed-orifice traps; the valve maintenance, preventive maintenance, start-up and overhauling; the valve leakage and proper installation, sizing and selection of valve; and the maximum allowable pressure drop.

Course Objectives

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

- Apply and gain an in-depth knowledge on valves, safety relief valves, strainers and steam traps
- Discuss valves and its principal functions
- Distinguish the difference among various types of valves including gate valve, globe valve, plug valve, ball valve, check valve, needle valve, diaphragm valve and butterfly valve
- Illustrate valve symbols and actuators
- Review valve glossary and piping overview as well as safety relief valves, definitions, types, functions and design features
- Discuss numerous types of strainers including temporary strainer, y-type strainer, mono-in-line strainer and duplex-strainer as well as the types of steam traps including mechanical steam traps, thermostatic and fixed-orifice traps
- Employ valve maintenance, preventive maintenance, start-up and overhauling
- Identify valve leakage in all types and carryout proper installation, sizing and selection of valve
- Analyze maximum allowable pressure drop

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 valves, safety relieve valves, strainers and stream straps for maintenance engineers, application engineers, inspection engineers, mechanical engineers, under-development engineers, electrical/electronics engineers, control systems and instrumentation engineers, production engineers, wellhead & drilling engineers and the new valve designers. Further, this course is essential for supervisors, foremen and other technical staff.

Course Date/Venue

Session(s)	Date	Venue
1	May 11-15, 2026	Salon Expo, NH Hotel Plaza de Armas, Seville, Spain
2	August 02-06, 2026	Pierre Lotti Meeting Room, Movenpick Hotel Istanbul Golden Horn, Istanbul, Turkey
3	September 14-18, 2026	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
4	October 04-08, 2026	Meeting Room 4, Four Seasons Hotel Cairo at Nile Plaza, Corniche El Nil, Garden City, Cairo, Egypt
5	November 15-19, 2026	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
6	December 13-17, 2026	Meeting Plus 9, City Centre Rotana, Doha, Qatar
7	January 03-07, 2027	Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE
8	February 08-12, 2027	Ruben Boardroom, The Rubens at The Palace, Buckingham Palace Road, London, United Kingdom
9	March 14-18, 2027	Meeting Plus 9, City Centre Rotana, Doha, Qatar

Course Fee

Doha	US\$ 6,000 per Delegate. This rate includes H-STK® (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.
Cairo	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 H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
London	US\$ 8,800 per Delegate + VAT . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Seville	US\$ 8,800 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

Haward's certificates are accredited by the following international accreditation organizations: -

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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**. 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.

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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.

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. Andrew Ladwig is a Senior Process & Safety Engineer with over 25 years of extensive experience within the Oil & Gas, Refinery, Petrochemical & Power industries. His expertise widely covers in the areas of PHA, HAZOP, HAZCOM, HAZMAT, HAZID, Behavior Based Safety, Hazardous Materials & Chemicals Handling, Pollution Control, Environment, Health & Safety Management, Process Risk Analysis, Hazard & Risk Assessment, Emergency Response Procedures Behavioural Based Safety (BBS), Confined Space Entry, Fall Protection, Emergency Response, H₂S, Safety Management System (ISO 45001), Accident/Incident Investigation System and Report PSM, Risk Assessment, SCE FMEA Failure Investigations, Site Management Safety Training (SMSTS), Occupational Health & Safety and Industrial Hygiene, Crisis Management & Damage Control in Oil & Gas Industry, Enhancing HSSE Safety Performance & Effectiveness, Overhead & Gantry Crane Safety, HSSE Principles & Practices Advanced, HAZOP Study, Sampling & Analysis, Training Analysis, Job Analysis Techniques, Storage & Handling of Toxic Chemicals & Hazardous Materials, Hazardous Material Classification & Storage/Disposal, Dangerous Goods, Environmental Management System (EMS). Further, he is also well-versed in Ammonia Manufacturing & Process Troubleshooting, Ammonia Storage & Loading Systems, Ammonia Plant Operation, Troubleshooting & Optimization, Ammonia Recovery, Ammonia Plant Safety, Hazard of Ammonia Handling, Storage & Shipping, Operational Excellence in Ammonia Plants, Fertilizer Storage Management (Ammonia & Urea), Fertilizer Manufacturing Process Technology, Sulphur Recovery, Phenol Recovery & Extraction, Wax Sweating & Blending, Petrochemical & Fertilizer Plants, Nitrogen Fertilizer Production, Petroleum Industry Process Engineering, Separators in Oil & Gas Industry, Gas Testing & Energy Isolations, Gas Liquor Separation, Industrial Liquid Mixing, Wax Bleachers, Extractors, Fractionation, Operation & Control of Distillation, Process of Crude ATM & Vacuum Distillation Unit, Water Purification, Steam & Electricity, Flame Arrestors and Coal Processing, Environmental Emission Control.

During his career life, Mr. Ladwig has gained his practical experience through his various significant positions and dedication as the **Mechanical Engineer, Project Engineer, Reliability & Maintenance Engineer, Maintenance Support Engineer, Process Engineer, HSE Supervisor, Warehouse Manager, Quality Manager, Business Analyst, Senior Process Controller, Process Controller, Safety Officer, Mechanical Technician, Senior Lecturer and Senior Consultant/Trainer** for various companies such as the Sasol Ltd., Sasol Wax, Sasol Synfuels, just to name a few.

Mr. Ladwig has a **Bachelor's** degree in **Chemical Engineering** and a **Diploma in Mechanical Engineering**. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM)** and has delivered various 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
- 10% Practical Workshops & Work Presentations
- 10% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos
- 30% VR/AR Hands-on Practical Application

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.
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

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome & Introduction</i>
0815 – 0830	PRE-TEST
0830 – 0930	Introduction to Valves
0930 – 0945	<i>Break</i>
0945 – 1100	Principal Functions of Valves
1100 – 1230	Gate Valve
1230 – 1245	<i>Break</i>
1245 – 1420	Globe Valve
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0930	Plug Valve
0930 – 0945	<i>Break</i>
0945 – 1100	Ball Valve
1100 – 1230	Check Valve
1230 – 1245	<i>Break</i>
1245 – 1420	Needle Valve
1420 – 1430	Recap
1430	<i>Lunch & End of Day Two</i>

Day 3

0730 – 0930	Diaphragm Valve
0930 – 0945	Break
0945 – 1100	Butterfly Valve
1100 – 1230	Valve Symbols
1230– 1245	Break
1245 – 1420	Valve Actuators
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4

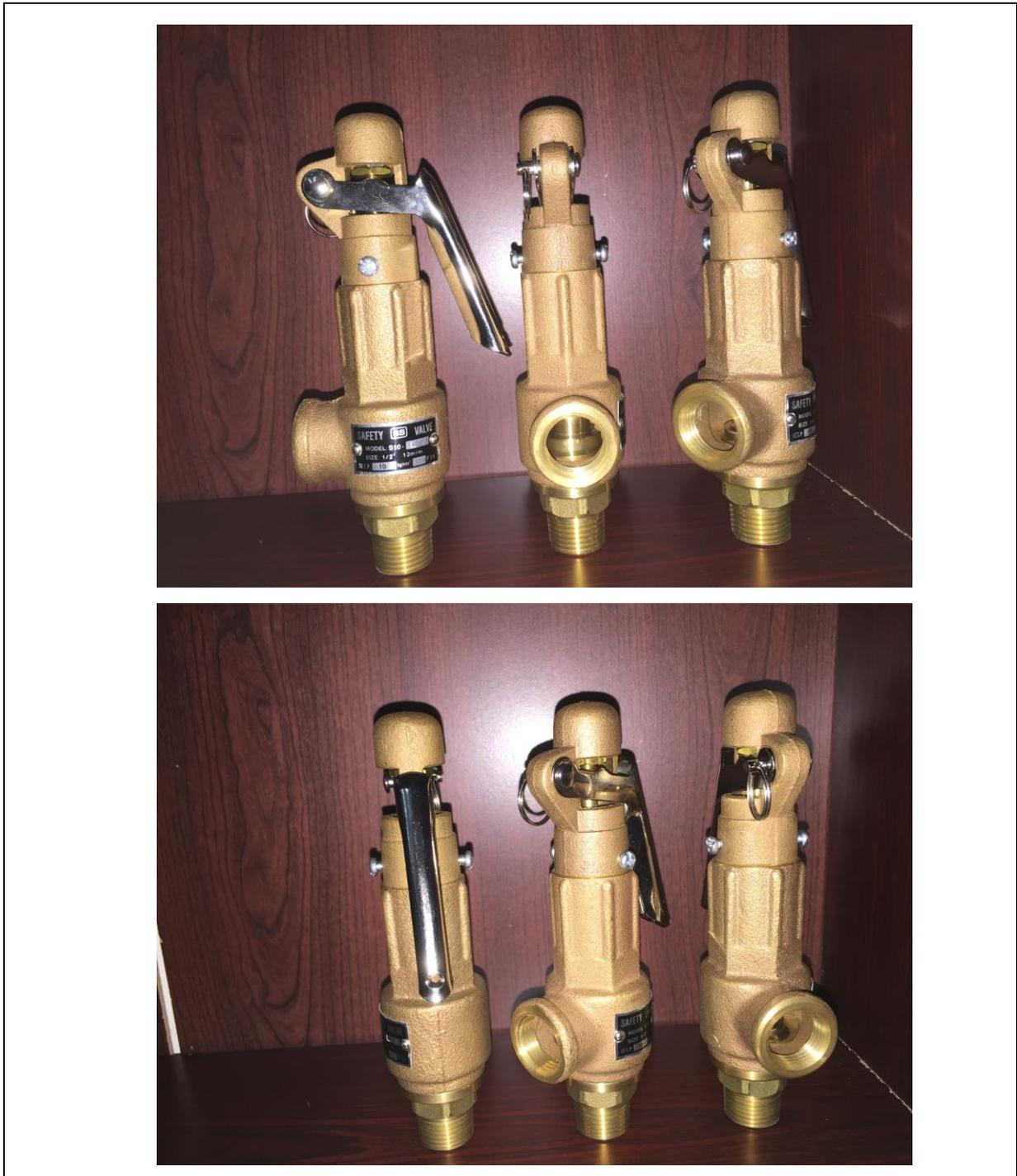
0730 – 0830	Valve Glossary & Piping Overview
0830 – 0930	Safety Relief Valves Definitions • Types • Functions • Design Features
0930 – 0945	Break
0945 – 1100	Types of Strainers Temporary Strainer • Y-Type Strainer • Mono-in-Line Strainer • Duplex Strainer
1100 – 1230	Types of Steam Traps Mechanical Steam Traps • Thermostatic • Fixed-Orifice
1230 – 1245	Break
1245 – 1420	Valve Maintenance Preventive Maintenance • Prior to Start-up • After Start-up • Workshop Overhaul & Maintenance Tips
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5

0730 – 0930	Valve Leakage
0930 – 0945	Break
0945 – 1100	Valve Installation
1100 – 1230	Valve Sizing & Selection
1230 – 1245	Break
1245 – 1345	Maximum Allowable Pressure Drop
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

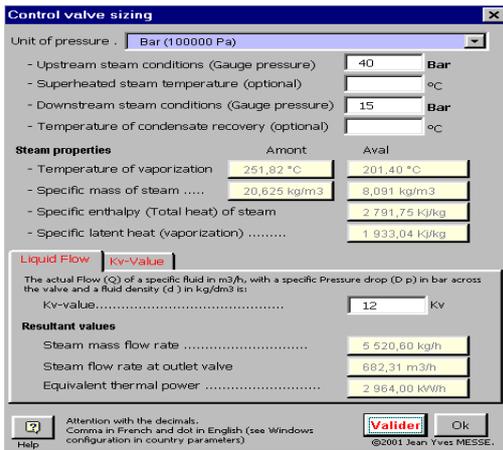
Valve Demo Kit

Hands-on demonstration will be held during the course. Proto-type safety relief valves will be temporary given to course participants for demonstration purposes as part of this course.

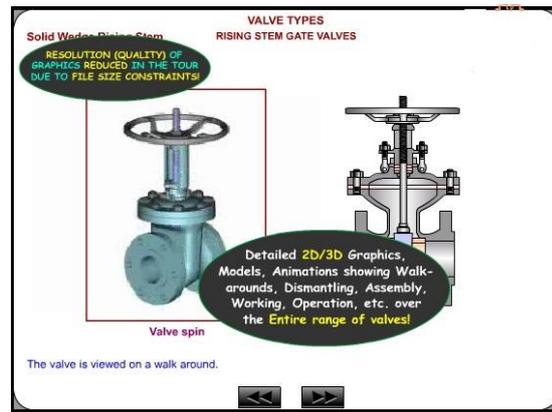


Simulator (Hands-on Practical Sessions)

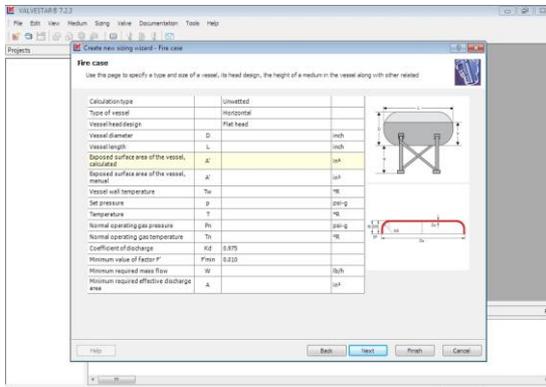
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the state-of-the-art “Valve Sizing Software”, “Valve Software 3.0”, “Valvestar 7.2 Software” and “PRV²SIZE Software” and our VR/AR Applications.



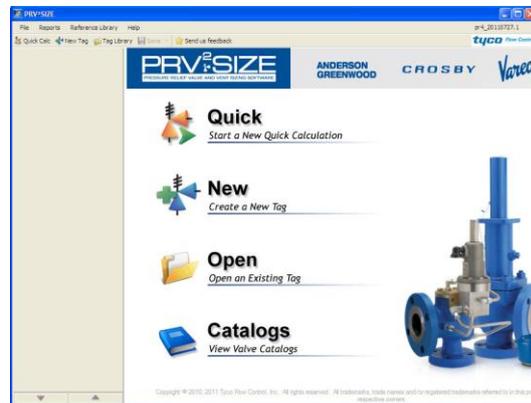
Valve Sizing Software



Valve Software 3.0



Valvestar 7.2 Software



PRV²SIZE Software

Virtual Reality (VR) and Augmented Reality (AR) Practical Sessions

Practical sessions will be organized during the course using cutting-edge Virtual Reality (VR) and Augmented Reality (AR) technologies to provide participants with a highly immersive and interactive learning experience. Through VR headsets and AR-enabled devices, delegates will be able to simulate real-world scenarios in a safe and controlled virtual environment, allowing them to practice the theories and techniques learned in class. Participants will engage in realistic, hands-on exercises such as operating equipment, performing inspections, troubleshooting systems and responding to simulated incidents that closely replicate actual field conditions. This advanced training approach enhances understanding, improves decision-making skills and builds confidence by bridging the gap between theoretical knowledge and real-world application.



Course Coordinator

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