COURSE OVERVIEW ME0120
Safety Relief Valve Sizing, Selection, Operation, Inspection, Testing, Maintenance & Troubleshooting (PRV & POPRV/PORV) API 520/521/526/527

Course Title
Safety Relief Valve Sizing, Selection, Operation, Inspection, Testing, Maintenance & Troubleshooting (PRV & POPRV/PORV): API 520/521/526/527

Course Date/Venue
March 03-07, 2024/TBA Meeting Room, The H Dubai Hotel, Sheikh Zayed Rd - Trade Centre, Dubai, UAE

Course Reference
ME0120

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.

A safety or pressure relief valve can be considered the most important single safety device on a boiler or pressure vessel. If it fails to function in the manner for which it was intended and an overpressure condition develops, the result could be catastrophic.

Course Objectives

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

- Size, select, operate, inspect, test, maintain and troubleshoot safety relief valves (PRV and POPRV/PORV) in accordance with the API 520/521/526/527 standards
- Discuss standards, NBI and VR-codes covering parties involved, code revision process, jurisdiction authorities, authorized inspection agencies, etc
- Explain the objective and scope as well as the definition and description of terms of ASME PTC 25-2018
- Describe PRV principles and development of pressure relief valve
- Carryout PRV installation and discuss the installation requirements, factors, operational requirements and other installation considerations
- Identify PRV operational malfunctions in testing facilities
- Recognize PRV certifications, training and personal qualifications and the procedure for determining valve capacities
- Perform PRV repair and non-destructive examination as well as define PRV terminology and identify the various types of valves
- Discuss nameplate data and correct interpretation
- Apply valve disassembly, valve critical inspections, lapping, grinding and assembly
- Employ systematic valve testing and sealing in accordance with API 527 and ASME
- Carryout inspection and testing of pressure-relieving devices and identify the causes of improper performance including replacement of rupture disk devices and inspection of pressure-relief valve visual on-stream
- Review inspection frequency, records and reports
- Troubleshoot and calibrate valve as well as recognize valve quality systems and obtain VR and administrative rules

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 safety relief valve in accordance with the international standards for those who are involved in the sizing, selection, operation, inspection, testing, maintenance and troubleshooting of valves. This includes process engineers, mechanical engineers, piping engineers, pipelines and pressure vessels engineers and supervisors. Further, it is suitable for inspection and QA & QC engineers, boilers and process plant equipment owners, maintenance staff who inspect and install pressure relief devices and engineers involved in plant turnaround and upgrade projects.

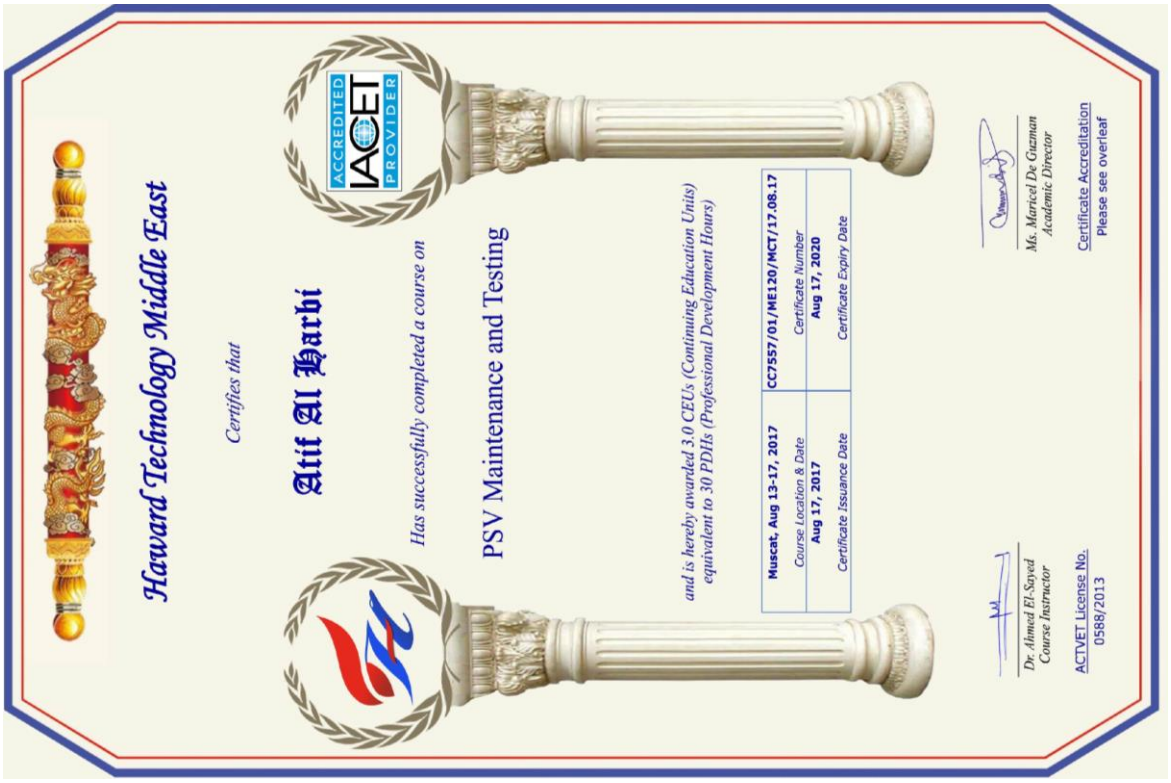
Course Certificate(s)

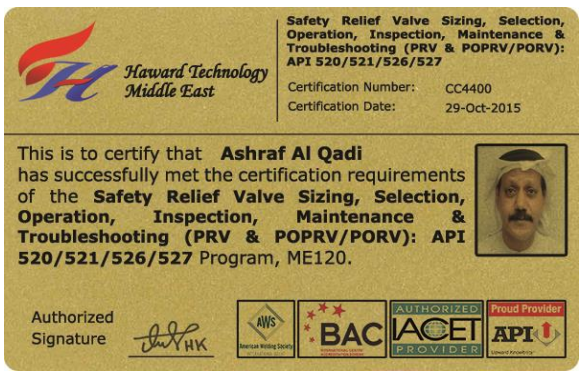
(1) Internationally recognized Competency Certificates and Plastic Wallet Cards will be issued to participants who completed a minimum of 80% of the total tuition hours and successfully passed the exam at the end of the course. Certificates are valid for 5 years.

Recertification is FOC for a Lifetime.

Sample of Certificates

The following are samples of certificates that will be awarded to course participants:-





(2) Official Transcript of Records will be provided to the successful delegates with the equivalent number of ANSI/IACET accredited Continuing Education Units (CEUs) earned during the course.

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Haward Technology Middle East

Continuing Professional Development (HTME-CPD)

CEU Official Transcript of Records

TOR Issuance Date: 28-Sep-17

HTME No. PAR213250

Participant Name: Taher Al Mazrouei

Program Ref.	Program Title	Program Date	No. of Contact Hours	CEU's
ME120	Safety Relief Valve Sizing, Selection, Operation, Inspection, Maintenance & Troubleshooting (PRV & POPRV/PORV): API 520/521/526/527	September 24-28, 2017	30	3.0

Total No. of CEU's Earned as of TOR Issuance Date **3.0**

TRUE COPY

Maricel De Guzman
Academic Director

Haward Technology is an Authorized Training Provider by the International Association for Continuing Education and Training (IACET), 11130 Sunrise Valley Drive, Suite 350 Reston, VA 20191, USA. In obtaining this approval, Haward Technology has demonstrated that it complies with the ANSI/IACET 1-2013 Standard which is widely recognized as the standard of good practice internationally. As a result of their Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for programs that qualify under the ANSI/IACET 1-2013 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 Association 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 is accredited by

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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 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 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. Kyle Bester is a **Senior Mechanical & Process Engineer** with extensive years of practical experience within the **Oil & Gas**, **Power & Water Utilities** and other **Energy** sectors. His expertise includes **Pressure Vessel**, **Safety Relief Valve** Sizing & Selection, **Valve** Disassembling & Repair, Pressure Relief Devices (**PSV**), **Hydraulic & Pneumatic** Maintenance, Advanced **Valve** Technology, **Pressure Vessel** Design & Fabrication, Valves, **Safety Relief Valves**, Strainers & Steam Traps, **Safety Relief Valve Operation**, Inspection and Repair, **Tank Farm & Tank Terminal**, **Tank Design**, Construction, Inspection & Maintenance, Atmospheric **Storage Tanks**, **Tank & Tank Farms**, **Tank** Inspection & Maintenance, **Oil Storage Tank** Operation & Maintenance, **Bearing & Bearing Failure** Analysis, **Centrifugal**, **Reciprocating** & **Screw** Compressor, **Gas Turbine** Repair, **Pump Installation & Operation**, **Compressors & Turbines** Troubleshooting, Coupling, Gear Boxes, Bearings & Lubrication, Mechanical Seals, Bearings & Seals, **Pressure Vessel** Design & Analysis, **Steam & Gas Turbine**, **High Pressure Boiler** Operation, **Compressors** Operation & Maintenance, **Pipe** Maintenance & Repair, **Centrifugal & Positive Displacement Pump**, **Rotating Machinery**, **PD Compressor & Gas Engine** Operation & Troubleshooting, **Hydraulic Tools & Fitting**, **Mass & Material Balance**, **Water Distribution & Pump Station**, **Process Piping** Design, **Stack & Noise** Monitoring, **HVAC & Refrigeration** Systems, **Condition Monitoring** System, **Maintenance Planning & Scheduling**, **Maintenance Shutdown & Turnaround**, **Maintenance Audit** Best Practices, **Maintenance & Reliability** Management, Reliability, Availability & Maintainability (**RAM**), **Root Cause** Analysis, **Reliability-Centered Maintenance** (**RCM**), **Reliability Engineering Analysis** (**RE**), **Root Cause Analysis** (**RCA**), **Asset Integrity Management** (**AIM**), **Reactive & Proactive** Maintenance, **Mechanical & Rotating Equipment** Troubleshooting & Maintenance, **Maintenance Management & Cost Control**, **Operation of the Hydrocarbon** Process Equipment, **Fired Heaters**, **Air Coolers**, **Heat Exchangers**, **Crude Desalter**, **Pressure Vessels & Valves**, **Flare**, **Blowdown & Pressure Relief Systems** Operation, **Separation Techniques**, **Bulk Liquid Storage** Management & **Tanks Cleaning**, **Ammonia Manufacturing** & Process Troubleshooting, Process Equipment **Design**, Process Reactors and **Chemical** Engineering. Further, he is also well-versed in **Water Reservoir**, **Water Tanks**, **Water Pumping** Station, **Water Distribution** System, **Water Network** System, **Water Pipes & Fittings**, **Water Hydraulic** Modelling, **Water Storage Reservoir**, **Reservoirs & Pumping** Stations Design & Operation, **Pumping** Systems, Interconnecting **Pipelines**, **Water Network Hydraulic** Simulation Modelling, **Water Supply** Design, **Water Balance Modelling**, **Water Distribution Network**, **Water Network** System Analysis, **Water Forecasts** Demand, **Water Pipelines** Materials & Fittings, **Water Network** System Design, Pump Houses & Booster Pumping Stations, **Potable Water Transmission**, **Water Distribution Network**, Districts Meters Areas (DMAs), **Water Supply & Desalination Plants** Rehabilitation, **Water Reservoirs & Pumping Stations**, **Water Network System** Extension, Water Network System Replacement & Upgrade, **Water Networks** Optimization, **Water Supply & Distribution** Systems Efficiency & Effectiveness, **Pipe** Materials & Fittings, **Service Reservoir** Design & Operation, **Pipes & Fittings**, **Water Network** System Design & Operation, **Supply Water Network** Rehabilitation, **Water Loss** Reduction, **Main Water** System Construction, **Main Water Line** Construction, Transmission & Distribution **Pipelines**, **Water Distribution** Design & Modelling, **Water Supply** System, Oilfield **Water Treatment**, Best Practice in **Sewage** & Industrial **Wastewater Treatment** & Environmental Protection, **Water Distribution** Design & Modelling, **Desilting**, Treating & Handling Oily **Water**, **Water Chemistry** for **Power Plant**, **Water** Sector Orientation, Environmental Impact Assessment (**EIA**). He is currently the **Part Owner & Manager** of Extreme Water SA wherein he manages, re-designed and commissioned a water and wastewater treatment plants.

During his career life, Mr. Bester has gained his practical and field experience through his various significant positions and dedication as the **Project Manager**, **Asset Manager**, **Water Engineer**, **Maintenance Engineer**, **Mechanical Engineer**, **Process Engineer**, **Supervisor**, **Team Leader**, **Analyst**, **Process Technician**, **Landscape Designer** and **Senior Instructor/Trainer** for various international companies, infrastructures, water and wastewater treatment plants from New Zealand, UK, Samoa, Zimbabwe and South Africa, just to name a few.

Mr. Bester holds a **Diploma** in **Wastewater Treatment** and a **National Certificate** in **Wastewater & Water Treatment**. Further, he is a **Certified Instructor/Trainer**, an **Approved Chemical Handler** and has delivered numerous courses, trainings, conferences, seminars and workshops 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 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, 03rd of March 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Standards, NBI & VR-Codes*** *Organizations Affecting Standards & Enforcement ● Parties Involved ● Historical Events ● ASME Boiler & Pressure Vessel Code ● ASME Boiler & Pressure Vessel Committees ● Code Revision Process ● ASME Accreditation Process ● Jurisdictional Authorities ● Authorized Inspection Agencies ● The National Board ● National Board Activities ● National Board Certification of Pressure Relief Devices ● VR Accreditation Program ● National Board Inspection Code*
0930 – 0945	*Break*
0945 – 1100	***ASME PTC 25 – 2018*** *ANSI/ASME PTC-25 – Pressure Relief Devices ● Object & Scope ● Definitions & Description of Terms ● Dimensional Characteristics - PRV ● Dimensional of Non-Reclosing PRD ● ASME Code Section I & VIII ● ASME Code Requirements Sections I and VIII ● Three Valve Average Method ● Four Valve Slope Method ● Nine Valve Coefficient Method*
1100 – 1215	***PRV Principles & Development*** *Pressure Relief Valve Principles of Operation ● Internal Parts of Safety Valve ● Where is the Action of Force? ● Area, Force, Pressure Relationship ● Static Force Balance ● Forces Applied to Disc ● Spring Force ● Dynamic Force Balances ● Reaction Force = FR ● Huddling Chamber- Nozzle Ring Adjustment*
1215 – 1230	*Break*
1230 – 1330	***PRV Principles & Development (cont'd)*** *Effect of Blowdown Ring ● Safety Valves - Field Example ● Safety Valves – Superheater ● Pilot Operated Pressure Relief Valves ● Development, Application of PRVs & Pilot Operated PRVs ● Development of Valve Designs ● Development ● Valve Spring Design & Theory ● Materials for Pressure Relief Valves ● Valve Spring Design & Fabrication ● Types of Safety Valve Designs*

1330 – 1420	***PRV Installation*** *Installation Requirements ● Lesson ● Installation Factors ● Installation ● Operational Requirements ● ASME Section I Power Boilers ● Other Installation Considerations ● Installation of ASME Section VIII PRV ● Requirements from ASME Sect. VIII ● Other Recommendations for Pressure Relief Valve Installation Provided ● Typical Installations*
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: ***Monday, 04th of March 2024***

0730 – 0930	***PRV Operational Malfunctions & Testing Facilities*** *Operational Malfunctions ● System Malfunctions ● Valve - Mechanical Caused ● Other System Malfunctions & Causes ● Erratic Set Pressure ● Blowdown ● Closing Pressure ● Blowdown or Closing Pressure are not met ● Valve - Mechanically Caused ● Installation & System Caused ● Back Pressure ● Other Typical Causes of Valve Malfunctions ● Testing Facilities for PRV*
0930 – 0945	*Break*
0945 – 1100	***PRV Certifications, Training & Personal Qualifications*** *Pressure Relief Device Certifications ● Pressure Relief Device Certifications ● Procedure for Determining Valve Capacities ● Valve Calculations ● Training & Qualification of Personnel*
1100 – 1215	***PRV Repair & Non-Destructive Examination*** *Pressure Relief Valve Repair ● PRV Terminology – PTC 25 – 2008 ● Low Pressure Safety Valves (LPSV) ● Pressure Relief Valve Repair ● Static Force Balance ● Dynamic Force Balance ● Flanged Safety Valve ● Threaded Safety Valve ● Threaded Safety-Relief Valve*
1215 – 1230	*Break*
1230 – 1330	***PRV Repair & Non-Destructive Examination (cont'd)*** *Flanged Safety-Relief Valve ● Safety-Relief Valve (Cage Type) ● Pilot Operated Pressure Relief Valves ● Cap & Lever Styles ● ASME Code Application ● Non-Code Applications ● Safety Valve Adjustments & Repairs ● Nondestructive Examination*
1330 – 1420	***Nameplate Data & Interpretation*** *Objectives ● Safety Valves Name Plate ● Original PRV Nameplate Data ● Manufacturer Manual ● Sample Traveler ● Cold Differential Test Pressure ● Capacity Ratings ● ASME Code Symbol ● Correct Interpretation ● Previous Repair Nameplate Recorded on the "VR" Traveler ● Repair Nameplate ● Nameplate Press ● PRV Nameplates*
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: **Tuesday, 05th of March 2024**

0730 – 0930	***Valve Disassembly*** *Disassembly of Pressure Relief Valves ● Shop Repair Advice ● "As Found" Conditions may Aid in Troubleshooting ● Cleaning Procedure ● PRV Cleaning in Progress ● PRV Cleaning Process Completed ● Pilot Operated Pressure Relief Valves ● Recommended Procedures for Repairing Pilot Operated Pressure Relief Valves ● Disassembly ● Cleaning ● Inspection ● Testing ● Sealing ● Nameplate*
0930 – 0945	*Break*
0945 – 1100	***Valve Critical Inspections*** *Objectives of an Inspection Job ● PRV Repair Flow Chart ● Inspector's Role ● Measurement & Test Equipment ● Inspection Methods ● PRV Spindle Inspection Points ● Disk & Nozzle Inspection ● PRV Guide & Disc Holder ● PRV Spring Inspection Points ● Spring Rate ● 900 Series Disc Criteria Data Sheet ● 6000 Series Stem Concentricity Disc & Guide Clearance ● 6000 Series Disc Criteria ● 6000 Nozzle Criteria ● Critical Inspection*
1100 – 1215	***Lapping, Grinding & Assembly*** *Lapping Objectives ● Two Critical Elements of PRV Operation ● Purpose of Lapping ● Balance of Lapping ● Ring Laps ● Lapping Materials ● Cleanliness ● Lap Selection ● Nozzle Seat Width ● PRV Lapping Procedure ● PRV Bearing Points ● Assembly Objectives ● Assemblers Responsibility ● Assembly Operation*
1215 – 1230	*Break*
1230 – 1330	***Valve Testing & Sealing (API 527 & ASME)*** *Testing Objectives ● ASME Requirements ● RV & PSV Testing & Adjustments ● Testing & Sealing ● Definition of Set Pressure ● Liquid Test – Definition of Open ● PRV Set Pressure on Liquid ● Prior to Opening Pressure on Liquid ● Definition of Set Pressure on Liquid ● Above Opening Pressure ● Maximum Overpressure 110% of Set Pressure ● Air Test PRV ● Reaction Force ● Start to Discharge For PRV*
1330 – 1420	***Valve Testing & Sealing (API 527 & ASME) (cont'd)*** *ASME Requirement for PRV Seat Tightness Testing ● API 527 ● ASME Code Requirement for Secondary Pressure Zone Testing of PRVs ● PRV Adjustments ● Two Ring Design Ring Setting Chart ● One Ring Design Ring Setting Chart ● Sealing Adjustments ● Sample Traveler ● Protect your Hearing during PRV Testing ● Field Testing Advice ● On Site Safety Valves Testing Schedule ● Safety Valves Test Schedule for Boilers ● On Site Safety Valves Test*
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: **Wednesday, 06th of March 2024**

0730 – 0800	***Introduction to API 576: Inspection of Pressure-relieving Devices*** *Scope ● Normative References ● Terms & Definitions*
0800 – 0830	***API 576: Pressure-relieving Devices*** *General ● Pressure Relief Valve ● Direct-acting Pressure-relief Valve ● Pilot-operated Pressure-relief Valves ● Rupture Disk Device ● Pin-actuated Devices*
0830 – 0930	***API 576: Causes of Improper Performance*** *Corrosion ● Damaged Seating Surfaces ● Failed Springs ● Improper Setting & Adjustment ● Plugging & Fouling ● Galling ● Misapplication of Materials ● Improper Location, History or Identification ● Improper Handling ● Improper Differential Between Operating & Set Pressures ● Improper Inlet/Outlet Piping Test Procedures*
0930 – 0945	*Break*

0945 – 1100	***API 576: Inspection & Testing*** *Reasons for Inspection & Testing ● Shop Inspection/Overhaul ● Inspection, Testing, Maintenance & Setting of Direct-acting Spring-loaded Valves on Equipment ● Inspection, Testing, Maintenance & Setting of Direct Spring-operated Safety Valves Used on Fired Pressure Vessels ● Inspection, Testing, Maintenance & Setting of Pilot-operated Pressure-relief Valves ● Inspection, Testing, Maintenance & Setting of Weight-loaded Pressure and/or Vacuum Vents on Tanks*
1100 – 1130	***API 576: Inspection & Replacement of Rupture Disk Devices*** *Rupture Disk Removal & Replacement ● Examples of Rupture Disk Failure Modes ● Rupture Disk Holder ● Inspection & Replacement of Rupture Disks*
1130 – 1215	***API 576: Pressure-relief Valve Visual On-stream Inspection*** *General ● Post-relief Event*
1215 – 1230	*Break*
1230 – 1330	***API 576: Inspection Frequency*** *General ● Frequency of Shop Inspection/Overhaul ● Time of Inspection ● Inspection & Servicing Deferral*
1330 – 1420	***API 576: Records & Reports*** *General ● The Need to Keep Records ● Responsibilities ● Sample Record & Report System*
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: ***Thursday, 07th of March 2024***

0730 – 0830	***Troubleshooting*** *Objectives In Troubleshooting ● PRV Applications ● PRV Installation ● PRV Installation ASME Sec. I ● SRV Internal Damage ● Steam Service Safety Valves ● Body & Nozzle Overhead View*
0830 – 0930	***Troubleshooting cont'd)*** *Piping Stress – Gravity or Expansion Horizontal Mounting ● Undersize Bolting on PRV Inlet Connection ● Plugged Drain, Flooded PRV ● Isolation Valve on PRV Inlet ● Double Trouble ● Reduced Outlet Piping ● Gagged PRV ● Troubleshooting Chart*
0830 – 0845	*Break*
0845 – 1000	***Valve Calibration*** *Calibration ● Types of Instruments Requiring Calibration ● Pressure Gauges ● Linear Measuring Equipment ● Welding Equipment ● Temperature Measuring Equipment ● In-House Measuring Standards ● Calibration of Pressure Gauges ● Definition of Pressure ● Standards for Pressure Gauges ● Use of the Dead Weight Tester*
1000 – 1145	***Valve Quality Systems*** *Quality Systems Definition ● Quality Systems for Certificate Holders ● Title Page ● Revision Log ● Contents Page ● Statement of Authority & Responsibility ● Organization Chart ● Scope of Work ● Drawings & Specification Control ● Material & Part Control ● Repair & Inspection Program ● Welding, NDE, & Heat Treatment (when applicable) ● Valve Testing, Setting, & Sealing ● Valve Repair Nameplates ● Calibration ● Manual Control ● Non-conformities ● Exhibits ● Testing Equipment ● Field Repairs*

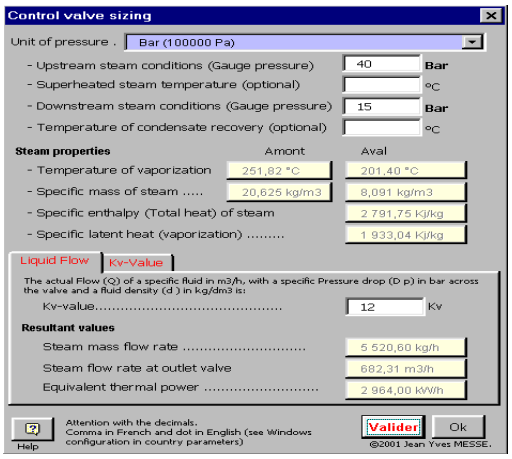
1145 – 1200	*Break*
1200 – 1230	***Obtaining VR & Administrative Rules*** *Administrative Rules & Procedures for Accreditation of ("VR") Repair Organizations ● "VR" Administrative Rules & Procedures ● SCOPE ● Definitions Relating to Pressure Relief Devices ● Accreditation Process ● Scope Issuance & Revision to a Quality System ● Accreditation of "VR" Repair Organizations ● Jurisdictional Participation ● General Rules ● Issuance & Renewal of the "VR" Certificate of Authorization ● General ● Issuance of Certificate ● Renewal of Certificate ● Review of Applicant's Facility*
1230 – 1300	***Obtaining VR & Administrative Rules (cont'd)*** *Verification Testing ● Verification Testing Alternatives ● Use of the "VR" Authorization ● Technical Requirements ● Stamp Use ● Return of Stamp ● Multiple Locations ● Certificate of Authorization Contents ● Changes to Certificates of Authorization ● Issuance of More Than One "VR" Symbol Stamp to a Certificate of Authorization Holder ● Steps for Obtaining VR Certificate ● Steps for Obtaining "VR" Stamp ● "VR" Administrative Rules & Procedures*
1300 – 1315	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1315 – 1415	***COMPETENCY EXAM***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Valve Demo Kit

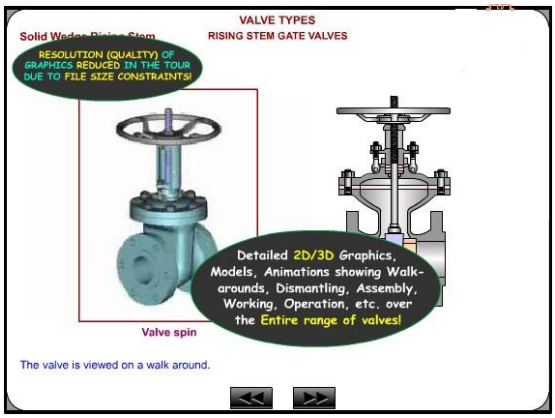
Practical session will be organized during the course for delegates to practice the theory learnt.

Simulator (Hands-on Practical Sessions)

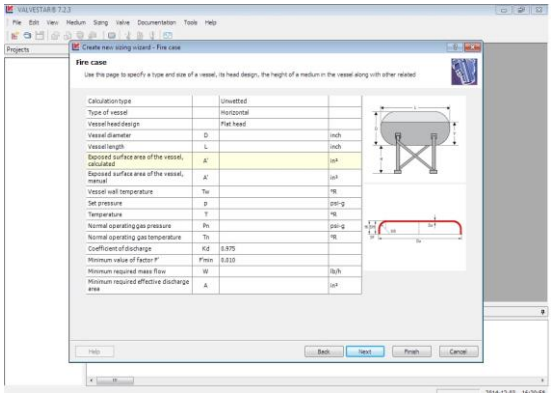
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the state-of-the-art "Valve Sizing Software", "Valve Software 3.0", "Valvestar 7.2 Software" and "PRV2SIZE Software".



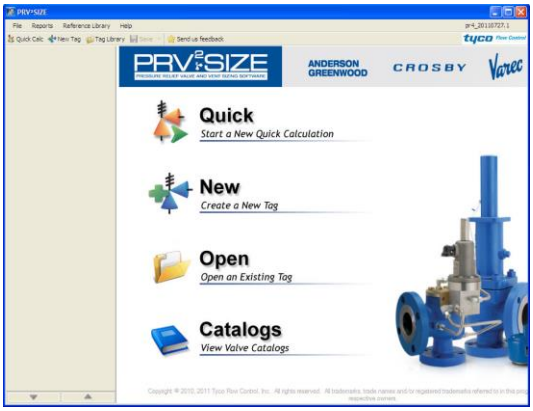
Valve Sizing Software



Valve Software 3.0



Valvestar 7.2 Software



PRV²SIZE Software

Course Coordinator

Mari Nakintu, Tel: +971 230 91 714, Email: mari1@haward.org