COURSE OVERVIEW IE0274-4D
Motor Operated Valves Maintenance & Troubleshooting

Course Title
Motor Operated Valves Maintenance & Troubleshooting

Course Date/Venue
September 16-19, 2024/Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA

Course Reference
IE0274-4D

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 in the class will be applied using our state-of-the-art simulators.

Motor Operated Valve (MOV) is an important item of plant & piping system. These valves are generally of large size and are used for different applications such as pump discharge etc. motor operated valves serve the purpose of fully opening or fully closing valves in pipelines. For example, cooling water lines, process pipelines where controlling of fluid is not required, motor operated valves can be used to fully allow or fully stop the fluid flow.

This course is designed to provide participants with a detailed and up-to-date overview of motor operated valves maintenance and troubleshooting. It covers the different types of actuators; the analysis of the main components of motor operated valves; setting procedures for limit switches and torque as prerequisite for proper operation; and troubleshooting techniques and advanced electrical signal analysis for remote diagnosis of problems.

Course Objectives

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

- Apply proper techniques on motor operated valves maintenance and troubleshooting
- Discuss valves and different types of actuators
- Select and analyze the main components of motor operated valves
- Set and adjust procedures for limit switches and torque as prerequisite for proper operation
- Employ advanced troubleshooting techniques and advanced electrical signal analysis for remote diagnosis of problems

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 motor operated valves maintenance and troubleshooting for electrical maintenance technicians and field engineers.

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$ 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.

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

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.

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. Alaa Abdel Kerim, PhD, MSc, BSc, is a **Senior Electrical & Instrumentation Engineer** with over **35 years** of extensive experience in **ABB 11kV Distribution Switchgear**, **Operation & Maintenance of Rotork**, **Electrical Safety**, **HV Cable** Design, **Cable** Splicing & Termination, **Cable** Jointing Techniques, **High Voltage** Electrical Safety, **Electrical Drawing & Schematics**, **Electrical Power**, **Electrical Wiring**, Machines, **Transformers**, **Motors**, **Power Stations**, **Substation** Site Inspection, **HV/MV Cable Splicing**, **High Voltage Circuit Breaker** Inspection & Repair, **Cable & Over Head Power Line**, **High Voltage Power System** Safe Operation, High Voltage Safety, **High Voltage Transformers**, Safe Operation of **High Voltage & Low Voltage Power Systems**, **Fundamentals of Electricity**, **Electrical Standards**, Practical **High Voltage Safety Operating Procedures**, Modern Power System **Protective Relaying**, **Electrical & Control System** Testing, **Design**, **Commissioning**, **Operation** and **Maintenance** of **Switchgears**, **Transformers**, **Substations**, **Medium & High Voltage Equipment** and **Circuit Breakers**, **Electrical Motors & Variable Speed Drives**, **Power System** Equipment, **Distribution Network** System, **Electric Distribution System Equipment**, Practical Troubleshooting of **Electrical Equipment & Control Circuits**, **Electrical & Control System** Testing & Commissioning, **LV/MV/HV Circuit Breakers** Inspection & Maintenance, Electrical **Power Substation** Maintenance, **Power Stations**, **Uninterruptible Power Systems** (**UPS**), **Battery Chargers** and **AC** & **DC Transmission**, **DCS**, **PLC**, **SCADA**, **Siemens SIMATIC S7** Maintenance & Configuration, **Siemens Simatic S7 PLC**, **Siemens WINCC, Siemens SIMATIC & WinCC**, **Siemens**, PLC Simatic **S7-400/S7-300/S7-200**, **HMI**, **Automation System**, **Process Control & Instrumentation**, **Hydrocarbon**, **Level & Flow Measurements**, **Analytical Instrumentation**, **Find Control Elements**, **Control Loop Operation**, **Data Acquisition & Transmission**, **Electronics Technology**, **Power Systems Control**, **Power Systems Security**, **Power Transmissions**, **Power Generation**, **Electrical Substations** and **MV/LV Electrical System**.

During his career life, Dr. Alaa has been practically and academically involved in different **Power System** and **Instrumentation international companies** and **Universities** as a **Senior Professor** & **Consultant**, **Instrumentation Engineer** and **Electrical Engineer**. His recent practical applications experience includes the design, supply, installation, operation of full **DCS**, **SCADA**, **PLC**, **HMI Automation System** for **Sumid Line Petroleum**, **Siemens USA**, **AREVA USA** to name a few. His experience also includes electrical coordination, protection level adjustments and electrical testing.

Dr. Alaa has a **PhD** degree in **Electrical Engineering** from the **Technical University of Gdansk**, **Poland** and has **Master's** and **Bachelor's** degrees in **Electrical Machine & Power Engineering** from **Cairo University** and **Helwan University**, respectively. Further, he is a **Certified Instructor/Trainer** and delivered numerous trainings and workshops worldwide.

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, 16th of September 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Valve Types & Components***
0930 – 0945	*Break*
0945 – 1100	***Actuators for Valves***
1100 – 1230	***Motor Selection***
1230 – 1245	*Break*
1245 – 1320	***Sizing of Control Valves, Toque & Thrust Requirements***
1320 - 1420	***Thrust & Torque Switches Setting***
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2: ***Tuesday, 17th of September 2024***

0730 – 0900	***Limit Switches Adjustment***
0900 – 0915	*Break*
0915 – 1100	***Gearing Components of MOV's***
1100 – 1230	***Control Amplifiers***
1230 – 1245	*Break*
1245 – 1320	***Feedback Devices***
1320 - 1420	***Control Valve Repair***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: ***Wednesday, 18th of September 2024***

0730 – 0930	***Packing Maintenance & Theory***
0930 – 0945	*Break*
0945 – 1100	***Power Supply Selection & Maintenance***
1100 – 1215	***Electrical Drawings & Schematics***
1215 – 1230	*Break*
1230 – 1320	***Control Strategies for MOV's***
1320 - 1420	***Auma Controls***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

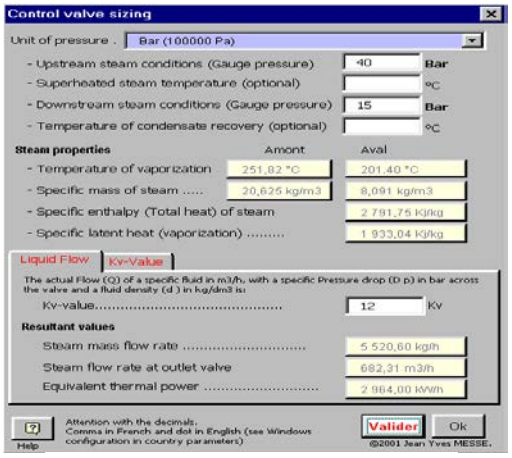
Day 4: ***Thursday, 19th of September 2024***

0730 – 0930	***Rotork & Flowserve Components & Adjustments***
0930 – 0945	*Break*
0945 – 1100	***Troubleshooting of MOVs***
1100 – 1215	***Electrical Signal Analysis for Diagnostics***
1215 – 1230	*Break*
1230 – 1320	***Failure Analysis of MOV's***
1320 - 1345	***Wireless Control & Setting***

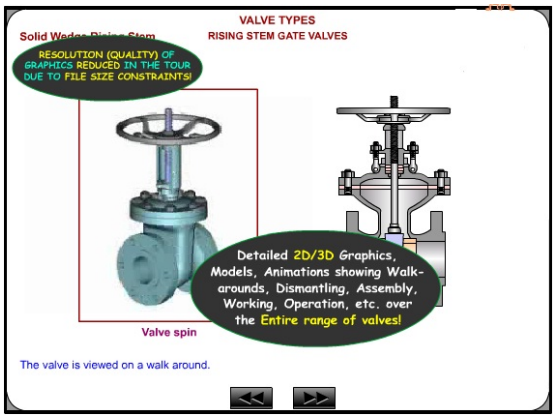
1345 - 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulators (Hands-on Practical Sessions)

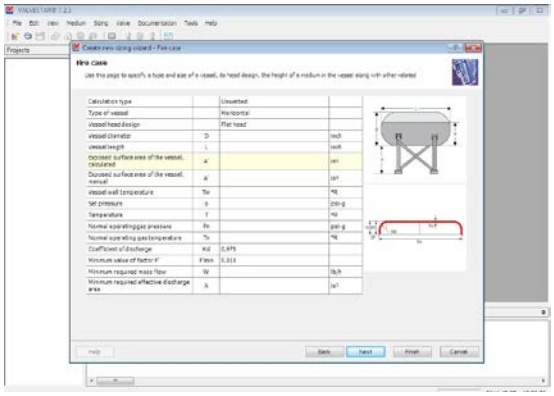
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art "Valve Sizing Software", "Valve Software 3.0", "Valvestar 7.2 Software" and "PRV²SIZE Software".



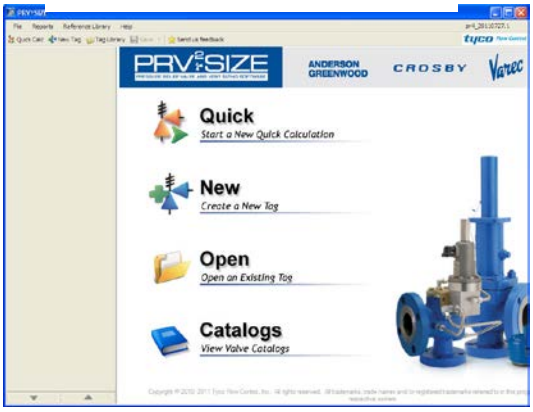
Valve Sizing Software



Valve Software 3.0



Valvestar 7.2 Software



PRV²SIZE Software

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org