

COURSE OVERVIEW ME0098
Pump Technology

Course Title

Pump Technology

Course Date/Venue

September 29-October 03, 2024/The Regent Meeting Room, The H Dubai Hotel, Sheikh Zayed Road, Dubai, UAE

Course Reference

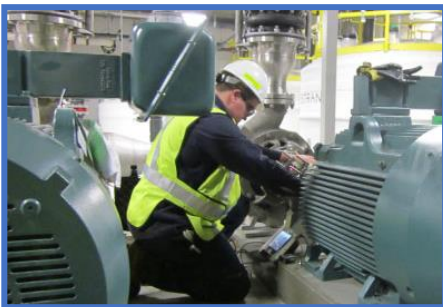
ME0098

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



This course is designed to provide delegates with a detailed and up-to-date overview on the proper selection, installation, performance and control of pumps. It covers pump construction covering centrifugal pump, pump curves, characteristics, most common end-suction and in-line pump types, impeller and casing types, single-stage and multistage pumps, long coupled and close-coupled pumps as well as various types of pumps and mechanical shaft seals including its components, functions and factors affecting the seal performance.



The course will enable the participants to describe motors, liquids and materials and employ proper installation of pumps as well as analyze pump performance, system characteristics and pumps connected in series and parallel. Participants will be able to adjust pump performance and describe speed-controlled pump solutions for constant pressure and temperature control, constant differential pressure in a circulating system and flow compensated differential pressure control.

Course Objectives

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

- Apply and gain an in-depth knowledge on the selection, installation, performance and control of various types of industrial pumps
- Recognize pump construction covering centrifugal pump, pump curves, characteristics, most common end-suction and in-line pump types, impeller and casing types, single-stage and multistage pumps as well as long coupled and close-coupled pumps
- Identify the various types of pumps and mechanical shaft seals including its components, functions and factors affecting the seal performance
- Describe motors, liquids and materials as well as employ proper installation of pumps
- Analyze pump performance, system characteristics and pumps connected in series and parallel

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 covers systematic techniques and methodologies in the selection, installation, performance and control of pumps for plant and maintenance engineers, process engineers, maintenance personnel, supervisors and reliability specialists working in refineries and petrol filling stations. The course is also highly valuable to senior maintenance technical staff who are involved with pumps, their operation and their maintenance.

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: -


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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.

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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**. 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:



Mr. Hossam Kachwar is a **Senior Engineer** with extensive years of **Onshore & Offshore** experience within the **Oil & Gas, Refinery** and **Petrochemical** industries. His wide expertise covers in the areas of **Pump Technology, Pump Construction & Installation, Pump Performance, Pumps Troubleshooting & Maintenance, Advanced Pumps & Valves, Pumps Overhauling, Pump Selection & Operation, Pump Vibration Testing & Analysis, Dynamic Pumps, Pump Engineering, Centrifugal Pumps and Troubleshooting, Control Valves, Actuators and**

Pumps, Process Plant Shutdown, Turnaround & Troubleshooting, Process Equipment, Mechanical Integrity, Maintenance Management, Reliability Management, Reliability Best Practices, Maintenance Strategies, Rotating Equipment Failure Analysis, Reliability Optimization, Reliability Centered Maintenance, Risk & Reliability Engineering, Mechanical Shaft Seals, Petroleum Engineering, Subsurface Mapping, Geostatistical Modeling Techniques, Formation Evaluation Measurement, Drilling Hazards & Drilling Bit Optimization, Geological & Hydrocarbon Evaluation, Gas Ratio Analysis & Interpretation, Reservoir Characterization (Permeability & Porosity), Structural Geology, Fracture Prediction, Fault Seal Analysis, Mudlogging & Wireline Operations, Coring/Casing, Geological Report, Drilling Parameters Monitoring, Data Analysis and Geological Interpretation. Currently, he is the **Senior Operation & Modeler Geologist** wherein he is responsible in analyzing rocks from the oil and gas wells and involve in geotestical modelling techniques as well as generating and using engineering geological models.

During Mr. Hossam's career life, he has gained his thorough and practical experience through his various positions as the **Contractor Wellsite Geologist, Consultant Geologist, Mud Logger Geologist, Data Engineer, Pressure Engineer** and **Instructor/Trainer** for Petro-China, Petro-Canada, Suncor Energy Company, Baker Hugs, Geoservices and PetroServices, just to name a few.

Mr. Hossam has a **Bachelor** degree in **Geology**. Further, he is a **Certified Instructor/Trainer** and has delivered numerous trainings, seminars, conferences and workshops globally.

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 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, 29th of September 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Pump Construction The Centrifugal Pump • Pump Curves • Characteristics of the Centrifugal Pump • Most Common End-Suction and In-Line Pump Types • Impeller Types (Axial Forces)
0930 – 0945	Break
0945 – 1030	Pump Construction (cont'd) Casing Types (Radial Forces) • Single-Stage Pumps • Multistage Pumps • Long-Coupled and Close-Coupled Pumps
1030 – 1130	Types of Pumps Standard Pumps • Split-Case Pumps • Hermetically Sealed Pumps • Sanitary Pumps
1130 – 1245	Break
1245 – 1420	Types of Pumps (cont'd) Wastewater Pumps • Immersible Pumps • Borehole Pumps • Positive Displacement Pumps
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Monday, 30th of September 2024

0730 – 0930	Mechanical Shaft Seals The Mechanical Shaft Seal's Components and Function • Balanced and Unbalanced Shaft Seals
0930 – 0945	Break
0945 – 1100	Mechanical Shaft Seals (cont'd) Types of Mechanical Shaft Seals
1100 – 1230	Mechanical Shaft Seals (cont'd) Seal Face Material Combinations
1230 – 1245	Break
1245 – 1420	Mechanical Shaft Seals (cont'd) Factors Affecting the Seal Performance
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Tuesday, 01st of October 2024

0730 – 0930	Motors Standards • Motor Start-Up • Voltage Supply
0930 – 0945	Break
0945 – 1100	Motors (cont'd) Frequency Converter • Motor Protection





1100 – 1230	Materials What is Corrosion? • Types of Corrosion • Material and Metal Alloys • Ceramics
1230 – 1245	Break
1245 – 1420	Materials (cont'd) Plastics • Rubber • Coatings
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Wednesday, 02nd of October 2024

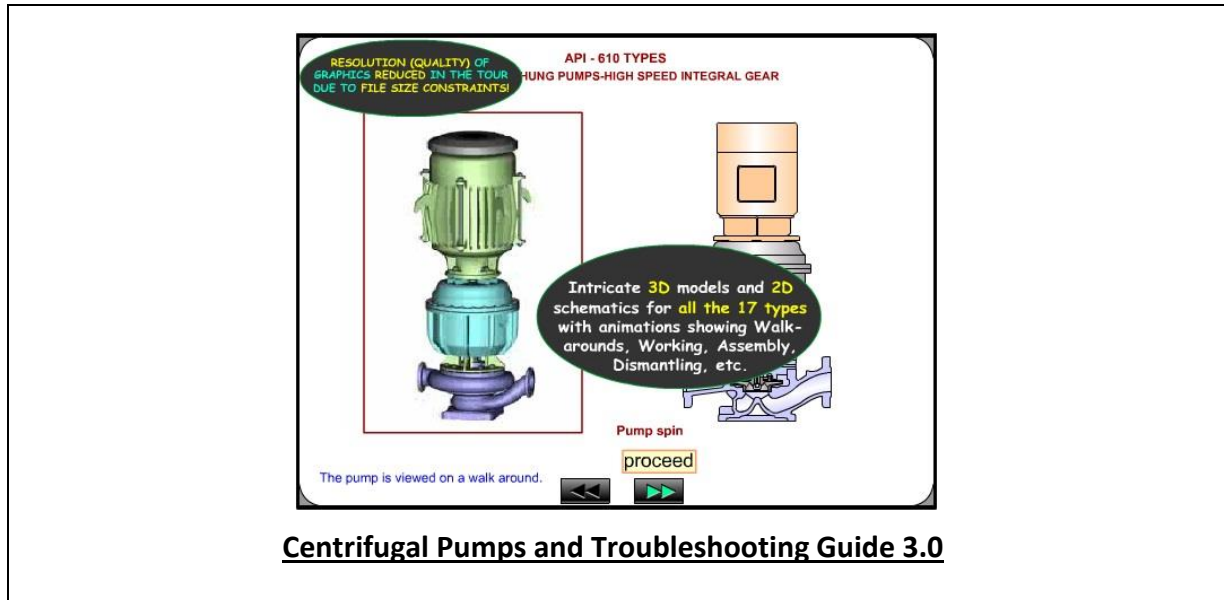
0730 – 0930	Pump Installation New Installation
0930 – 0945	Break
0945 – 1100	Pump Installation (cont'd) Existing Installation-Replacement
1100 – 1230	Pump Installation (cont'd) Pipe Flow for Single-Pump Installation
1230 – 1245	Break
1245 – 1420	Pump Installation (cont'd) Limitation of Noise and Vibrations • Sound Level (L)
1420 – 1430	Recap
1430	Lunch & End of Day Four

Day 5: Thursday, 03rd of October 2024

0730 – 0830	Pump Performance Hydraulic Terms
0830 – 0930	Pump Performance (cont'd) Electrical Terms • Liquid Properties
0930 – 0945	Break
0945 – 1230	System Characteristics Single Resistances
1230 – 1245	Break
1245 – 1345	System Characteristics (cont'd) Closed and Open Systems
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 our state-of-the-art simulator “Centrifugal Pumps and Troubleshooting Guide 3.0”.



Course Coordinator

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