

**COURSE OVERVIEW ME0098**  
**Pump Technology**

**Course Title**

Pump Technology

**Course Reference**

ME0098

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**Course Date/Venue**



Session(s)	Date	Venue
1	January 07-11, 2024	Kizkulesi, Crown Plaza Istanbul Asia Hotels & Convention Center, Istanbul, Turkey
2	February 04-08, 2024	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
3	March 03-07, 2024	Oryx Meeting Room, Doubletree By Hilton Doha-Al Sadd, Doha, Qatar

**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

## **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.

## **Accommodation**

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.



ME0098 - Page 2 of 7

ME0098-01-24/Rev.15|26 December 2023




### 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. Attalla Ersan**, PEng, MSc, BSc, is a **Senior Mechanical Engineer** with over **35 years** of extensive experience within the **Oil & Gas, Hydrocarbon** and **Petrochemical** industries. His expertise widely covers the areas of **Boiler & Steam System Management, Waste Heat Recovery, Boiler Plant Safety, Boiler Controls, Steam Distribution Systems, Steam Traps, Pollution Control, Cracked Gas Compressor, Reboilers, Selection & Operation, Boiler Inspection & Maintenance, Boiler instrumentation & Controls, Boiler Start-up & Shutdown, Boiler Operation & Steam System Management, Boiler Water Chemistry & Treatment, Boiler Efficiency & Waste Heat Recovery, Boiler Inspection & Testing, Boiler Troubleshooting & Safety, Boiler Emissions & Pollution Control, Pumps Maintenance & Troubleshooting, Valve Maintenance, Plunger Valve, Maintenance & Reliability Best Practices, Maintenance & Reliability Management, Process Plant Operations, Process Plant Startup & Operating Procedure, Ethylene & Vinyl Chloride, Ethane Cracking Furnaces Operations, Ethylene & Polyethylene Operation, Acid Gas Treatment, Sulphur Recovery, EDC & VCM, Caustic Soda Storage, Debottle-necking, Process Operation, Safety Audits, Process Engineering, Root Cause Investigations, Pyrolysis Cracking, Gas Plant Commissioning, Loss Prevention Techniques, Occupational Hazards, Hot Tapping & Tie-Ins, Pre-Start-Up Safety Review (PSSR), Standard Operating Procedure (SOP), Emergency Operating Procedure (EOP), Permit to Work Systems (PTW), Steam Cracking, Steam Generation, Binary Fractionators Operations, Tanks Farm & Metering Station Techniques, Gas Treatment, Sulphur Recovery Process Unit Operation, Permit to Work System, Emergency Response Planning, Sulphur Unit Air Blower, Steam Turbine, Distillation Columns, Gas Treatment, Waste & Water Treatment Units, Water Meter Reading System (MMR), Utility Regulation, Best Water Equipment, Water Fittings, Water Tanks Filling Stations, Pumping Station, Water Chemistry, Water Network Design, Pumps, Compressors, Turbines, Motors, Turbo-expanders, Gears, Heat Exchanger, Hazard and Operability (HAZOP) Study, Process Hazards Analysis (PHA), HAZOP Facilitation, Loss Prevention, Consequence Analysis Application, Gas Detectors Operation, Accident/Incident Investigation (Why Tree Method), Occupational Exposure Assessment, Fire Fighting & First Aid, Environmental Management and Basic Safety Awareness. Further, he is also well-versed in Project Management, Human Resources Consultancy, Manpower Planning, Job Design & Evaluation, Recruitment, Training & Development and Leadership, Creative Problem Solving Skills, Work Ethic, Job Analysis Evaluation, Training & Development Needs, Bidding & Tendering, Technical Report Writing, Supervisory Leadership, Effective Communication Skills and Total Quality Management (TQM). He is currently the **CEO of Ersan Petrokimya Teknoloji Company Limited** wherein he is responsible for the design and operation of Biogas Process Plants.**

During his career life, Mr. Ersan has gained his practical and field experience through his various significant positions and dedication as the **Policy, Organization & Manpower Development Head, Training & Development, Head, Ethylene Plant – Pyrolysis Furnace Engineer, Production Engineer, Mechanical Engineer, Boiler Mechanic, Process Training Coordinator, Ethylene Plant Shift Supervisor, Ethylene Plant Panel & Fit Operator, Process Training & Development Coordinator, Technical Consultant, and Instructor/Trainer** for Qatar Vinyl Company Limited and Qatar Petroleum Company (QAPCO).

Mr. Ersan is a **Registered Professional Engineer** and has a **Master's degree of Education** in **Educational Training & Leadership** and a **Bachelor's degree of Petrochemical Engineering**. Further, he is a **Certified Instructor/Trainer** and has delivered numerous trainings, courses, workshops, conferences and seminars internationally.





**Course Fee**

Istanbul	<b>US\$ 6,000</b> per Delegate + <b>VAT</b> . This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Dubai	<b>US\$ 5,500</b> per Delegate + <b>VAT</b> . This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	<b>US\$ 6,000</b> per Delegate. This rate includes H-STK® (Haward Smart Training Kit), 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 &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Pump Construction</b> <i>The Centrifugal Pump • Pump Curves • Characteristics of the Centrifugal Pump • Most Common End-Suction and In-Line Pump Types • Impeller Types (Axial Forces)</i>
0930 – 0945	<i>Break</i>
0945 – 1030	<b>Pump Construction (cont'd)</b> <i>Casing Types (Radial Forces) • Single-Stage Pumps • Multistage Pumps • Long-Coupled and Close-Coupled Pumps</i>
1030 – 1130	<b>Types of Pumps</b> <i>Standard Pumps • Split-Case Pumps • Hermetically Sealed Pumps • Sanitary Pumps</i>
1130 – 1245	<i>Break</i>
1245 – 1420	<b>Types of Pumps (cont'd)</b> <i>Wastewater Pumps • Immersible Pumps • Borehole Pumps • Positive Displacement Pumps</i>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

**Day 2**

0730 – 0930	<b>Mechanical Shaft Seals</b> <i>The Mechanical Shaft Seal's Components and Function • Balanced and Unbalanced Shaft Seals</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Mechanical Shaft Seals (cont'd)</b> <i>Types of Mechanical Shaft Seals</i>
1100 – 1230	<b>Mechanical Shaft Seals (cont'd)</b> <i>Seal Face Material Combinations</i>
1230 – 1245	<i>Break</i>





1245 – 1420	<b>Mechanical Shaft Seals (cont'd)</b> Factors Affecting the Seal Performance
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Two

**Day 3**

0730 – 0930	<b>Motors</b> Standards • Motor Start-Up • Voltage Supply
0930 – 0945	Break
0945 – 1100	<b>Motors (cont'd)</b> Frequency Converter • Motor Protection
1100 – 1230	<b>Materials</b> What is Corrosion? • Types of Corrosion • Material and Metal Alloys • Ceramics
1230 – 1245	Break
1245 – 1420	<b>Materials (cont'd)</b> Plastics • Rubber • Coatings
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Three

**Day 4**

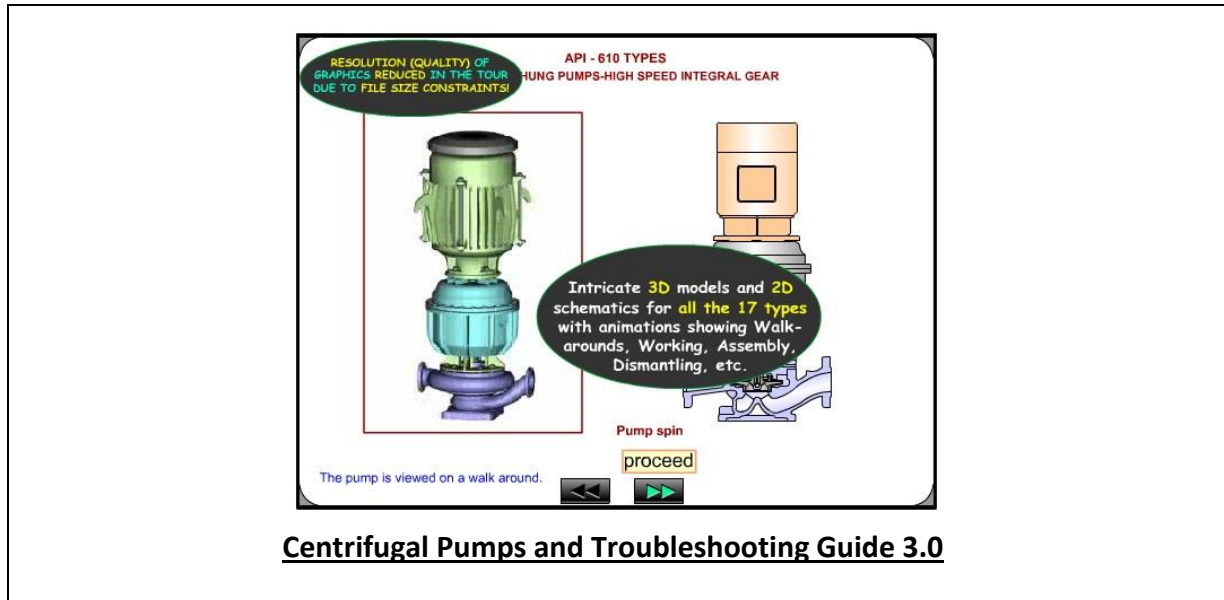
0730 – 0930	<b>Pump Installation</b> New Installation
0930 – 0945	Break
0945 – 1100	<b>Pump Installation (cont'd)</b> Existing Installation-Replacement
1100 – 1230	<b>Pump Installation (cont'd)</b> Pipe Flow for Single-Pump Installation
1230 – 1245	Break
1245 – 1420	<b>Pump Installation (cont'd)</b>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

**Day 5**

0730 – 0830	<b>Pump Performance</b> Hydraulic Terms
0830 – 0930	<b>Pump Performance (cont'd)</b> Electrical Terms • Liquid Properties
0930 – 0945	Break
0945 – 1230	<b>System Characteristics</b> Single Resistances
1230 – 1245	Break
1245 – 1345	<b>System Characteristics (cont'd)</b> Closed and Open Systems
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
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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