

COURSE OVERVIEW PE0950-4D
Cryogenic Pumping

Course Title
 Cryogenic Pumping

Course Date/Venue
 October 07-10, 2024/ Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
 PE0950-4D

Course Duration/Credits
 Four days/2.4 CEUs/24 PDHs



Course Description



This practical and highly-interactive course includes real-life case studies where participants will be engaged in a series of interactive small groups and class workshops.



This course is designed to provide participants with a detailed and up-to-date overview on the operation and maintenance of cryogenic pumping. It covers the applicable codes, construction material and installation of methods; the cryogenic operation, troubleshooting and maintenance; the liquefied gases; and the proper applications for submerged motor liquified gas pumps covering base loads plants, export terminals, import terminals, peak shaving and alternative fuels.



During this interactive course, participants will learn the submerged motor pump designs for liquified gas pumps; the material selection for liquified gas pumps; the installation and pre-start procedures for liquified gas pumps; the operation controls and instrumentation for in-tank pumps, vessel mounted pumps, marine pumps and mounted storage pumps; the troubleshooting cryogenic pumping; and the disassembly, maintenance procedure, cleanliness, assembly, re-installation and maintenance facilities.

Course Objectives

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

- Apply a comprehensive knowledge on the operation and maintenance of cryogenic pumping
- Identify the different types of cryogenic pumps and the specific application of each types
- Recognize the applicable codes, construction material and installation of methods
- Gain working knowledge in cryogenic operation, troubleshooting and maintenance
- Define cryogenics and discuss liquefied gases
- Implement proper applications for submerged motor liquified gas pumps covering process systems, base loads plants, export terminals, import terminals, peak shaving and alternative fuels
- Perform submerged motor pump designs for liquified gas pumps
- Apply material selection for liquified gas pumps
- Employ installation and pre-start procedures for liquified gas pumps
- Carryout operation controls and instrumentation for in-tank pumps, vessel mounted pumps, marine pumps and mounted storage pumps
- Maintain and troubleshoot cryogenic pumping and employ proper disassembly, maintenance procedure, cleanliness, assembly, re-installation and maintenance facilities

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 cryogenic pumping (operation and maintenance) for engineers, specialists, supervisors, operators, maintenance technicians and technicians.

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 **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.

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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.

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. Attalla Ersan, PEng, MSc, BSc, is a **Senior Engineer** with over **35 years** of extensive experience within the Project Safety **Oil & Gas, Hydrocarbon** and **Petrochemical** industries. His expertise widely covers the areas of **HAZOP** Facilitation, **Hazardous Materials, Material Safety Data Sheets (MSDS), Hazardous Wastes, Hazards of Chemical Incidents, Shipping Configurations, Respiratory Protection, Protective Clothing, Donning and Doffing Procedures, Boiler & Steam System Management, Waste Heat Recovery, Boiler Plant Safety, Boiler Controls, Steam Distribution Systems, Steam Traps, Pollution Control, Cracked Gas Compressor, Reboilers, Sulphur Unit Air Blower, Steam Turbine, Distillation Columns, Gas Treatment, Waste & Water Treatment Units, 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, Debottlenecking, Loss Prevention, 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), Hazard and Operability (HAZOP) Study, Process Hazards Analysis (PHA), Consequence Analysis Application, Gas Detectors Operation, Accident/Incident Investigation (Why Tree Method), Occupational Exposure Assessment, Fire Fighting & First Aid, Environmental Management, Basic Safety Awareness, Steam Cracking, Steam Generation, Binary Fractionators Operations, Tanks Farm & Metering Station Techniques, Gas Treatment, Sulphur Recovery Process Unit Operation, Permit to Work System and Emergency Response Planning.** 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, 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

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.

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, 07th of October 2024

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	Definition of Cryogenics (Video)
0930 – 0945	Break
0945 – 1100	Liquefied Gases LPG's Ammonia, CO. LN2, LNG • Petrochemical Liquefied Gases, Ethane, Ethylene, Propylene, Butane etc.
1100 – 1230	Liquefied Gases (cont'd) Liquefied Natural Gases (Video) • LPG's Ammonia, CO. LN2, LNG
1230 – 1245	Break
1245 – 1420	Liquefied Gases (cont'd) Petrochemical Liquefied Gases, Ethane, Ethylene, Propylene, Butane etc. • Liquefied Natural Gases, Oxygen, Hydrogen, Helium
1420 – 1430	Recap
1430	Lunch & End of Day One

Day 2: Tuesday, 08th of October 2024

0730 – 0900	Applications for Submerged Motor Liquefied Gas Pumps Process Systems etc.
0900 – 0915	Break
0915 – 1100	Applications for Submerged Motor Liquefied Gas Pumps (cont'd) Base Load Plants, Export Terminals, Import Terminals
1100 – 1230	Applications for Submerged Motor Liquefied Gas Pumps (cont'd) Peak Slaving, Alternative Fuels, etc.
1230 – 1245	Break
1245 – 1420	Applications for Submerged Motor Liquefied Gas Pumps (cont'd) LNG Video
1420 – 1430	Recap
1430	Lunch & End of Day Two

Day 3: Wednesday, 09th of October 2024

0730 – 0900	Submerged Motor Pump Designs for Liquefied Gas Pumps In-Tank Pumps • Vessel Mounted Pumps • Line Mounted Pumps
0900 – 0915	Break
0915 – 1100	Submerged Motor Pump Designs for Liquefied Gas Pumps (cont'd) Vehicle Loading Pumps • Marine Pumps • Misc. Applications • Case Study (Pump Selection)
1100 – 1230	Material Selection for Liquefied Gas Pumps Case Study (Poor Performance)

1230 – 1245	Break
1245 – 1420	Installation & Pre-Start Up Procedures for Liquefied Gas Pumps Storage Prior to installation • In-Tank Pumps • Vessel Mounted Pumps • Marine Pumps • Cool down Procedures • Misc. Procedures • Case Study (Root Cause of Failure)
1420 – 1430	Recap
1430	Lunch & End of Day Three

Day 4: Thursday, 10th of October 2024

0730 – 0900	Operation Controls & Instrumentation Instrumentation: Vibration Detection, Liquid Level OCR/UCR • Start Up Procedures • In-Tank Pumps • Vessel Mounted Pumps • Marine Pumps • Mounded Storage Pumps
0900 – 0915	Break
0915 – 1200	Maintenance & Troubleshooting Disassembly • Maintenance Procedures • Cleanliness • Case Study (Improve Performance) • Assembly • Re-Installation • Maintenance Facilities
1200 – 1300	Question & Answer Session Workshop
1300 – 1315	Break
1315 – 1345	Summary, Open Forum & Closure
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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