

COURSE OVERVIEW PE0355

Product Storage, Loading & Transport Systems Design

Course Title

Product Storage, Loading & Transport Systems Design

Course Date/Venue

Session 1: May 26-30, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE
 Session 2: September 07-11, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE



Course Reference

PE0355



Course Duration/Credits

Five days/3.0 CEUs

Course Description



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



This course is designed to provide delegates with a detailed and up-to-date overview of safe movement, storage, handling, transportation & troubleshooting of petrochemicals. It covers the different types & accessories of storage tanks, & establish the correct operation, inspection & cleaning methods of tanks; the regulations and requirements of marine terminals; and the international, national and local rules on emergency response, stability, safety and integrity.



During this interactive course, participants will learn the general hazards for ships & terminals and demonstrate safety management procedures on firefighting, security and protection of ships equipment & shipboard systems; and the shipboard terminal management & operations as well as methods of carriage & storage of petrochemicals.

Course Objectives

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

- Apply the proper concepts & guidelines on the safe movement, storage, handling, transportation & troubleshooting of petrochemicals
- Identify the different types & accessories of storage tanks, & establish the correct operation, inspection & cleaning methods of tanks
- Enumerate the regulations and requirements of marine terminals, including the international, national and local rules on emergency response, stability, safety & integrity
- Analyze the general hazards for ships & terminals and demonstrate safety management procedures on fire fighting, security and protection of ships equipment & shipboard systems
- Evaluate shipboard terminal management & operations as well as methods of carriage & storage of petrochemicals

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 is intended for logistics & product handling staff, marine terminal staff, marine operation staff, petrochemical movement personnel, safety & HSE staff, custody measurement staff, metering engineers, process engineers and other technical staff who are involved in petrochemical handling, movement, storage, safety and transportation.

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.

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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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.

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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.

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. Karl Thanasis (Athanasios Karalis), PEng, MSc, MBA, BSc, is a **Senior Process & Mechanical Engineer** with **45 years** of extensive industrial experience within the **Oil & Gas, Refinery and Petrochemical** industries. His wide expertise includes **Control Valve Maintenance & Testing, Advanced Operational Skills, Operations & Maintenance for Gas Processing Plant, Oil & Gas Processing Facilities Operations, Applied Natural Gas Processing, Dehydration & Advanced Rotating Equipment, Gas Processing & Compression, Process Equipment Design & Troubleshooting, Process Plant Optimization & Continuous Improvement, Production Process Optimization, Operations Planning Optimization, Process Equipment Design, Process Plant Performance & Efficiency, Process Integration & Optimization, Root Cause Analysis (RCA) Methods, Root Cause Analysis, Process Equipment & Piping System, Rotating Equipment Reliability Optimization & Continuous Improvement, Material Cataloguing, Mechanical & Rotating Equipment Troubleshooting & Maintenance, Rotating Equipment for Process Industry, Rotating Machinery Best Practices, Centrifugal Pumps Operation, Positive Displacement Pumps Repair, Pump Maintenance & Troubleshooting, Heat Exchanger Maintenance & Repair, Heat Exchanger Inspection & Troubleshooting, Fin-fan Coolers, Fundamentals of Engineering Drawings, Codes & Standards, P&ID Reading Interpretation & Developing, Boiler Design, Boiler Inspection & Maintenance, Boiler Operation & Control, Boiler Troubleshooting & Inspection, Boiler Instrumentation & Control, Steam Boiler Maintenance, Boiler & Steam Generation System, Boiler Failure Analysis & Prevention, Boiler Burner Management, Boiler Water Treatment Technology, Machinery Failure Analysis, Preventive & Predictive Maintenance, Condition Monitoring, Root Cause Analysis (RCA), Root Cause Failure Analysis (RCFA), Reliability Centred Maintenance (RCM), Risk Base Inspection (RBI), Metallurgical Failure Analysis, Corrosion Failure Analysis, Steam Generation, Steam Turbines, Power Generator Plants, Gas Turbines, Combined Cycle Plants, Boilers, Process Fired Heaters, Air Preheaters, Induced Draft Fans, All Heaters Piping Work, Refractory Casting, Heater Fabrication, Thermal & Fired Heater Design, Heat Transfer, Coolers, Pumps, Turbo-Generator, Turbine Shaft Alignment, Lubrication, Mechanical Seals, Packing, Blowers, Bearings, Couplings, Clutches and Gears.** Further, he is also versed in **Wastewater Treatment Technology, Networking System, Water Network Design, Industrial Water Treatment in Refineries & Petrochemical Plants, Piping System, Water Movement, Water Filtering, Mud Pumping, Sludge Treatment and Drying, Aerobic Process of Water Treatment that includes Aeration, Sedimentation and Chlorination Tanks.** His strong background also includes **Design and Sizing of all Waste Water Treatment Plant Associated Equipment such as Sludge Pumps, Filters, Metering Pumps, Aerators and Sludge Decanters.**

Mr. Thanasis has acquired his thorough and practical experience as the **Project Manager, Plant Manager, Area Manager, Maintenance Manager, Engineering Manager, Technical Consultant & Trainer, Head of Capital Projects, Refractory Specialist, Construction Superintendent, Maintenance Supervisor, Project Engineer, Process Engineer, Maintenance Engineer and Thermal Design Engineer** of various companies worldwide in the **USA, Germany, England and Greece.**

Mr. Thanasis is a **Registered Professional Engineer** in the **USA and Greece** and has **Master's and Bachelor's degree in Mechanical Engineering with Honours** from the **Purdue University and Southern Illinois University (USA)** respectively as well as an **MBA** from the **University of Phoenix (USA)**. Further, he is a **Certified Instructor/Trainer, Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management (ILM)**, a member of the **American Society of Heating, Refrigeration and Air-Conditioning Engineers** and delivered various trainings, courses, seminars 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

0730 – 0800	<i>Registration & Coffee</i>
0800 – 0815	<i>Welcome</i>
0815 – 0830	PRE-TEST
0830 – 0930	Introduction <i>Course Overview • Participant’s Expectation • Basic Properties of Petrochemicals • Toxicity of Petrochemicals • Petrochemical Plant Layout • Petrochemical Movement Methods</i>
0930 – 0945	<i>Break</i>
0945 – 1045	Petrochemical Storage <i>The Tank Farm Overview • General Installations of a Tank Farm</i>
1045 – 1145	Petrochemical Storage (cont’d) <i>Types of Storage Tanks, Accessories of Tanks</i>
1145 – 1200	<i>Break</i>
1200 – 1300	Petrochemical Storage (cont’d) <i>Basics of Operation & Inspection of Tanks • Gas Freeing of Tanks & Vessels</i>
1300 – 1345	Petrochemical Storage (cont’d) <i>Methods of gauging tanks • Meters & Meter Proving</i>
1345 – 1420	Petrochemical Storage (cont’d) <i>Tank Mixers • Cleaning of Petrochemical Tank</i>
1420 – 1430	Recap
1430	<i>Lunch & End of Day One</i>

Day 2

0730 – 0830	Transmission Lines: Operation & Cathodic Protection
0830 – 0930	Pigging of Pipelines
0930 – 0945	<i>Break</i>
0945 - 1100	Marine Terminal: Regulations & Requirements <i>Regulations for Terminals & for Vessels while at Terminals (International, National, Local Port, Terminal)</i>
1100 – 1145	Marine Terminal: Regulations & Requirements (cont’d) <i>Major Terminal Management Concerns (Fire, Weather, Pollution, Ship Stability & Integrity, Communications, Documentation, Adequacy of Emergency Response Plans, Adequately Trained Terminal & Vessel Personnel)</i>
1145 – 1245	Marine Terminal--The Human Factor <i>The Human Factor in Terminal Operations</i>
1245 - 1300	<i>Break</i>
1300 – 1345	Static Electricity <i>Principles of Electrostatics • General Precautions Against Electrostatic Hazards • Other Sources of Electrostatic Hazards</i>

1345 - 1420	General Hazards for Ship & Terminal Control of Potential Ignition Sources • Portable Electrical Equipment • Management of Electrical Equipment & Installations in Dangerous Areas • Use of Tools • Equipment Made of Aluminium • Cathodic Protection Anodes in Cargo Tanks • Communications Equipment • Spontaneous Combustion • Auto-Ignition • Asbestos
1420 - 1430	Recap
1430	Lunch & End of Day Two

Day 3

0730 - 0830	Fire Fighting Types of Fire • Extinguishing Agents
0830 - 0930	Security Security Assessments • Responsibilities Under the ISPS Code • Security Plans
0930 - 0945	Break
0945 - 1100	Shipboard Systems Fixed Inert Gas Systems • Venting Systems • Cargo & Ballast Systems • Power & Propulsion Systems • Vapour Emission Control (VEC) Systems • Stern Loading & Discharging Arrangements
1100 - 1200	Ship's Equipment Shipboard Fire – Fighting Equipment • Gas Testing Equipment • Lifting Equipment
1200 - 1215	Break
1215 - 1330	Management of Safety & Emergencies The International Safety Management (ISM) Code • Safety Management Systems • Permit to Work Systems • Hot Work • Welding & Burning Equipment • Other Hazardous Tasks • Management of Contractors • Repairs at a Facility Other Than a Shipyard • Shipboard Emergency Management
1330 - 1420	Enclosed Spaces Definition & General Caution • Hazards of Enclosed Spaces • Atmosphere Tests Prior to Entry • Control of Entry into Enclosed Spaces • Safeguards for Enclosed Space Entry • Emergency Procedures • Entry into Enclosed Spaces with Atmospheres Known or Suspected to be Unsafe for Entry • Respiratory Protective Equipment • Work in Enclosed Spaces • Pumphoom Entry Precautions • Pumphoom Operational Precautions
1420 - 1430	Recap
1430	Lunch & End of Day Three

Day 4

0730 - 0830	Shipboard Operations Cargo Operations • Stability, Stress, Trim & Sloshing Considerations • Tank Cleaning • Gas Freeing • Crude Oil Washing • Ballast Operations • Cargo Leakage into Double Hull Tanks • Cargo Measurement, Ullaging, Dipping & Sampling • Transfers Between Vessels
0830 - 0930	Carriage & Storage of Petrochemical Materials Ship's Stores • Cargo & Bunker Samples • Other Materials • Packaged Cargoes

0930 - 0945	<i>Break</i>
0945 - 1100	Human Element Considerations <i>Manning Levels • Training & Experience • Hours of Rest • Drug & Alcohol Policy • Drug Trafficking • Employment Practices</i>
1100 - 1145	Terminal Management & Organization <i>Compliance • Hazard Identification & Risk Management • Operating Manual • Terminal Information & Port Regulations • Supervision & Control • Ship & Berth Compatibility • Documentation</i>
1145 - 1245	Terminal Operations <i>Pre – Arrival Communications • Mooring • Limiting Conditions for Operations • Ship/Shore Access • Double Banking • Over the Tide Cargo Operations • Operations Where the Ships is not Always Afloat • Generation of Pressure Surges in Pipelines • Assessments of Pressure Surges • Reduction of Pressure Surge Hazard • Pipeline Flow Control as a Static Precaution</i>
1245 - 1300	<i>Break</i>
1300 - 1345	Terminal Systems & Equipment <i>Electrical Equipment • Fendering • Lifting Equipment • Lighting • Ship/Shore Electrical Isolation • Earthing & Bonding Practice in the Terminal</i>
1345 - 1420	Cargo Transfer Equipment <i>Metal Cargo Arms • Cargo Hoses • Vapour Emission Control Systems</i>
1420 - 1430	Recap
1430	<i>Lunch & End of Day Four</i>

Day 5

0730 - 0830	Safety & Fire Protection <i>Safety • Marine Terminal Fire Protection • Alarm & Signalling Systems • Detection & Alarm Systems at Terminals Handling Crude Oil & Petroleum Products • Fire – Fighting Equipment • Water – Borne Fire – Fighting Equipment • Protective Clothing • Access for Fire – Fighting Services</i>
0830 - 0930	Emergency Preparedness <i>Terminal Emergency Planning – Plan Components & Procedures • Definition & Hierarchy of Emergencies • Terminal Emergency Plan • Emergency Removal of tanker from Berth</i>
0930 - 0945	<i>Break</i>
0945 - 1100	Emergency Evacuation <i>Evacuation & Personnel Escape Routes • Survival Craft • Training & Drills</i>
1100 - 1200	Communications <i>Procedures & Precautions • Pre – Arrival Exchange of Information • Pre – Berthing Exchange of Information • Pre – Transfer Exchange of Information • Agreed Loading Plan • Agreed Discharge Plan • Agreement to Carry out Repairs</i>
1200 - 1215	<i>Break</i>
1215 - 1300	Mooring <i>Personnel Safety • Security of Moorings • Preparations for Arrival • Mooring at Jetty Berth • Berthing at Buoy Moorings</i>

1300 – 1345	Precautions on Ship & Terminal During Cargo Handling External Openings in Superstructures • Central Air Conditioning & Ventilation Systems • Openings in Cargo Tanks • Inspection of Ship's Cargo Tanks Before Loading • Segregated Ballast Tank Lids • Ship & Shore Cargo Connections • Accidental Oil Spillage & Leakage • Fire fighting Equipment • Proximity to Other Vessels • Notices • Manning Requirements • Control of Naked Flames & Other Potential Ignition Sources • Control of Vehicles & Other Equipment • Helicopter Operations
1345 – 1400	Course Conclusion
1400 – 1415	POST-TEST
1415 – 1430	Presentation of 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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