COURSE OVERVIEW OE0441
General Marine Engineering Knowledge

Course Title
General Marine Engineering Knowledge

Course Date/Venue
October 27-31, 2025/Highgate 1 Meeting Room, London Marriott Hotel Regents Park, London, United Kingdom

Course Reference
OE0441

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

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 will help the participants to understand the fundamentals of ship systems, including main engine room systems for propulsion and steering, ballasting and fuels, fresh water supply, air condition and auxiliary power. This course will also address the principles of ship stability and hydrodynamics.

During this interactive course, participants will learn the fundamental knowledge on marine engineering; process and condition of marine engineering systems as well as main propulsion systems including boilers and steam turbines, diesel engines, gas turbines, nuclear power and reduction gears; recognize and describe the principles, design, type and specification of shipboard evaporators, bilge, ballast and firemain systems; Employ the proper method of sewage treatment systems; shipboard piping and components as well as the shipboard air conditioning systems and ship design and characteristics of shipboard filtering systems, ship auxiliary systems and internal communication systems.

Course Objectives

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

- Apply and gain a fundamental knowledge on marine engineering
- Discuss the process and condition of marine engineering systems as well as main propulsion system including boilers and steam turbines, diesel engines, gas turbines, nuclear power and reduction gears
- Recognize and describe the principles, design, type and specification of ship propeller, shafts and seals
- Explain the ship steering and hydraulic systems including electrical systems, shipboard evaporators, bilge, ballast and firemain systems
- Employ the proper method of sewage treatment systems
- Analyze and classify the shipboard piping and components as well as the shipboard air conditioning systems and ship design
- Describe the characteristics of shipboard filtering systems, ship auxiliary systems and internal communication systems

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 marine engineers working ashore or in ships' engine rooms, ship masters and first officers with a sea career, port captains and ship agents, port pilots receiving vessels as they enter seaports, shipyard superintendents and dock masters involved in ship repair and dry-docking naval architects and ship designers.

Course Fee

US$ 8,800 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

Haward's certificates are accredited by the following international accreditation organizations:

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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.

- 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.

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. Luis Manuel is a **Senior Marine Engineer** with over **30 years** of extensive and practical experience within the **Oil**, **Gas**, **Petrochemical** and **Petroleum** industries. His expertise includes **Marine Vetting & Audit Criteria Manual** for **Tank Ships**, **Marine & Ship Vetting**, **Vetting Process & Marine Safety Criteria**, **Tanker Vetting** for **Terminals**, **Ship Vetting**, **Marine Terminal** Operations & Management, **Marine Hazards** Prevention & Control, **Marine Communication** Systems, **Marine Safety**, **Marine Engineering Knowledge**, **Oil & Gas Marine Terminals**, **Vessel Hull & Machinery Survey**, Oil & Gas Fields **Terminal** Operations, **Seamanship**, **Shipping** Overview, **Marine Fire Fighting** Equipment, **Hull Damage** Control, **Vessel Rescue**, **Life Saving**, **Safety Process**, **Offshore Marine** Operation Management, **Offshore** Survey, Oil & Gas Terminals Loading & Discharging, Performance Monitoring of Offshore Structures, **Offshore** Pipeline Global Buckling, **Offshore** Modular Units, **Offshore** Structure Design & Construction, **Offshore** Project Management, **Tanker Vetting** for Terminals, **Loading Master** Certification for Oil & Gas Terminals, **Port Terminals** Crisis Management & Major Emergency Response. Further he is also well versed in **ASME Post Construction Code**, **Inspection Planning**, **Fitness-for-Service** (**FFS**) (**API 579**), **Design**, **Inspection**, **Repair**, **Maintenance**, **Alteration** and **Reconstruction** of **Steel Storage Tanks** (**API-653**), **Positive Material Identification** (**API RP 578**), Naval Architecture, Regulatory Compliance Inspections, **Stress & Fatigue Analysis** using **SACS**, **StruCad**, **Caesar II** and **Finite Element Analysis** simulators. He was the **Technical Advisor** and **Engineering Manager** of a leading international engineering firm where he led all Inspections, Structural Engineering and Pipeline Projects for **Total-ELF**, **Shell** and **Mobil**.

During his career life, Mr. Manuel has gained his thorough practical experience in **multiple engineering disciplines** that includes pipeline/piping inspection and engineering, naval engineering, container cargo lashing, aerospace engineering and offshore structural engineering (oil and gas exploration platforms) through several challenging positions such as the **Senior Pipelines Engineer**, **Senior Piping Engineer**, **Senior & Lead Structural Engineer**, **Staff Engineer**, **Offshore Project Manager**, **Naval Architect** and **Applications Engineer** for various international companies including **Chevron**, **ExxonMobil**, **Addax Petroleum**, **ZAGOC**, **NASSCO**, DWC, Point Engineering, **US ARMY**, W.S. & Atkins, Atlas Engineering, **Heerema Offshore**, Casbarian Engineering Associates (CEA), Textron Marine, Ingalls Shipbuilding and Peck & Hale. Further, he has been heavily involved in the development of fabrication and erection drawings for offshore structures including installation and rigging as well as in the instruction materials as authorized by EDI (**Engineering Dynamic Incorporated**) for the training of engineers on the Structural Analysis Computer System (**SACS**) software.

Mr. Manuel has a **Bachelor's** degree in **Structural & Marine Engineering** from the **State University of New York**. Further, he is a **Certified Internal Verifier/Trainer/Assessor** by the **Institute of Leadership & Management** (**ILM**), a **Certified Instructor/Trainer** and the **author** of the book "**Offshore Platforms Design**" and the "**SACS Software Training Module**".

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 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, 27th of October 2025***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Introduction to Marine Engineering Systems*** *Overall needs of Ship-Board Power ● Introduction to Steam, Diesel, Gas Turbines and Nuclear Power Propulsion Systems ● Different Ship Designs for different Functions*
0930 – 0945	*Break*
0945 - 1030	***Main Propulsion Systems – Boilers and Steam Turbines*** *Boilers and Steam Turbine Types ● Fuel System ● Main Steam System ● Feed Water System ● Condensate System ● Lube Oil System*
1030 - 1230	***Main Propulsion Systems – Diesel Engines*** *Ship Diesel Engines ● Fuel Systems ● Lube Oil System ● Cooling Systems ● Turbo Chargers ● Exhaust System ● Compressed Air System ● Cranckcase Design ● Cranckshafts*
1230 - 1245	*Break*
1245 - 1420	***Main Propulsion Systems - Gas Turbines*** *Main Components ● Compressor ● Turbine Stages ● Fuel Systems ● Lube Oil Systems ● Control Systems ● Exhaust Systems ● GE LM2500 Turbine*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2: **Tuesday, 28th of October 2025**

0730 - 0930	***Main Propulsion Systems – Nuclear Power*** *History ● Shipboard Uses ● Reactor Designs ● Cooling Systems ● Fuel Systems ● Steam Systems ● Control Systems ● Performance*
0930 - 0945	*Break*
0945 - 1030	***Main Propulsion Systems - Reduction Gears*** *Main Shaft Reduction Gearing Components ● Gear Tooth Designs and Functions ● Jacking Systems ● Lube Oil Systems and Cooling ● Lube Oil Centrifuge Systems*
1030 - 1230	***Propeller Shafts and Seals*** *Shaft Design and Support ● Shaft Seal Types ● Shaft Length and Flexibility*
1230 - 1245	*Break*
1245 - 1330	***Ship Propellers*** *Screw Propellers ● Water Jets ● Voith Schneider Propeller (VSP, also known as Cycloidal Drive) ● Ducted Propellers and Bow Thrusters*
1330 - 1420	***Video Presentation***
1420 - 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3: **Wednesday, 29th of October 2025**

0730 - 0930	***Ship Steering and Hydraulic Systems*** *Rudders ● Steering Rams ● Hydraulic Systems for Valve Control and Automation*
0930 - 0945	*Break*
0945 - 1030	***Electrical systems*** *Generators ● Power Distribution ● Generator Synchronization ● Controls*
1030 - 1230	***Shipboard Evaporators*** *Types ● Performance ● Reliability*
1230 - 1245	*Break*
1245 - 1330	***Bilge, Ballast and Firemain Systems*** *Submersible Pumps ● Ballast Tanks ● Transfer Systems ● Fire Fighting Apparatuses and Layout*
1330 - 1420	***Video Presentation***
1420 - 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Three*

Day 4: **Thursday, 30th of October 2025**

0730 - 0930	***Sewage Treatment System*** *Holding Tanks ● Macerators ● Aerators ● Chemical Treatment and Effluent Types ● Maritime Laws on Sewage Discharge (MARPOL)*
0930 - 0945	*Break*
0945 - 1030	***Shipboard Piping and Components*** *Pump Types ● Valves ● Strainers ● Seals ● Sea chests ● Tanks ● Gauges*

1030 - 1230	***Shipboard Air Conditioning Systems*** *Compressors ● Evaporators ● Controls ● Refrigerants ● Efficiency and Performance*
1230 - 1245	*Break*
1245 - 1420	***Introduction to Ship Design*** *Vessel Motion in Waves ● Intact Stability ● Hull Girder Strength and Deflection Modes – Hogging and Sagging ● Midship Section Calculation ● Frames and Watertight Bulkeads ● Damaged Stability ● Regulatory Bodies*
1420 - 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5: ***Friday, 31st of October 2025***

0730 - 0930	***Shipboard Filtering Systems*** *Fuel oil and Lube Oil Filtering and Cleaning Systems*
0930 - 0945	*Break*
0945 - 1030	***Ship Auxiliary Systems*** *Aux. Generators ● Auxiliary Steam ● Compressed Air ● Sea Water Systems*
1030 - 1230	***Internal Communication Systems*** *Bridge-to-Engine Room Communication ● Engine Room Control Station Console ● Emergency Response and Damage Control ● Crew Responsibilities*
1230 – 1245	*Break*
1245 - 1345	***Open Forum*** *Questions and Answer/Discussions*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
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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