



## **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:

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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**. 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.

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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.





### 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. George Poulos**, MBA, MSc, BSc, CEng, is a **Senior Naval Architect** with over **30 years** of extensive experience within the **Oil & Gas, Petrochemical, Refinery & Utility** Industry. His wide experiences cover in the areas of **Offshore Safety, Navigation, Ship Operation & Control, General Marine Engineering, Maritime Leadership, Marine Environmental, Marine Terminal Operation, Marine Planning & MODU Stability, Stability Reports, Draft Surveys, Rig Reactivation & Under Water Surveys, Damage Survey & Cost Estimation, Tanker Vetting for Terminals, Loading Master Certification for Oil & Gas Terminals, Marine Environment Protection, Offshore Maintenance Management, Cargo Handling Storage, Deck & Equipment Maintenance, Global Maritime Distress and Safety System (GMDSS), Electronic Chart Display and Information System (ECDIS), Vessel Audit & Inspection, Ballast Control Operation, Barge Supervision, Class & Statutory Surveys, Dry Docks Overhauling & Major Repairs Planning, Marine Units Inspection & Assessment, Mooring & Towing, Radio Operations, Automatic Radar Plotting Aid Management, Tanker Familiarization, Security Awareness, Oil Spill Management & Recovery, Oil Spill Prevention & Control and Oil Spill Combating Operations. Further, he is also well-versed in Metallurgical Failure, Metallurgy & Metallurgical Processes, Metallurgical Lab, Corrosion and Metallurgy, Analysis & Prevention, Corrosion Fabrication & Inspection, Fabrication & Repair, Corrosion Prevention, Corrosion Engineering, Corrosion Control, Corrosion Inhibition, Corrosion Management in Process Operations, Corrosion & Prevention of Failures, Material Selection, Cathodic Protection Systems, Steel Manufacturing, Steel Forging, Steel Manufacturing & Process Troubleshooting, Hot Rolling Process, Hot Strip Mill, Mill Operations, Roll Mill, Electric Arc Furnace (EAF), Slit Rolling, Carbon Steel Pipe Wall Thickness & Grade Selection, Ferro-Alloys, Heat Treatment & Prevention Techniques and Post Weld Heat Treatment.**

During his career life, Mr. Poulos has gained his practical and field experience through his various significant positions and dedication as the **Chief Executive, Head of Technical Studies, Manager, Lead Naval Architect, Senior Consultant, Lead Welding Engineer, Senior Welding Engineer, Design Engineer, Sales Engineer, Author, Welding Instructor, Visiting Lecturer and Technical Proposal Research Evaluator** from various international companies such as Greek Welding Institute, Hellenic Quality Forum and International Construction Companies such as Shipbuilding, Aircraft Industry and Oil and Gas Industry.

Mr. Poulos is a **Registered Chartered Engineer** and has **Master's** of Business Administration (**MBA**) from the **Open University, UK** and a **Bachelor's** degree in **Welding Engineering and Naval Architecture** from the **Sunderland University, UK**. Further, he is a **Certified Trainer/Instructor**, an active Member of Chartered Quality Institute (**CQI**), The British Welding Institute (**TWI**), The Royal Institution of Naval Architects (**RINA**) and American Welding Society (**AWS**), a Registered **EWFIW** (European Welding Federation-International Welding Institute W/E) and an **IRCA** Accredited External Quality Systems Auditor through BVQI. He is an **Author** of Technical Book dealing with Protection/Health/Safety in the Welding/Cutting domain and delivered various trainings, seminars, conferences, workshops and courses globally.

### 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, 27<sup>th</sup> of October 2025**

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Marine Engineering Systems</b> 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	<b>Main Propulsion Systems – Boilers &amp; Steam Turbines</b> Boilers and Steam Turbine Types • Fuel System • Main Steam System • Feed Water System • Condensate System • Lube Oil System
1030 - 1230	<b>Main Propulsion Systems – Diesel Engines</b> 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	<b>Main Propulsion Systems - Gas Turbines</b> Main Components • Compressor • Turbine Stages • Fuel Systems • Lube Oil Systems • Control Systems • Exhaust Systems • GE LM2500 Turbine
1420 – 1430	<b>Recap</b> 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, 28<sup>th</sup> of October 2025**

0730 - 0930	<b>Main Propulsion Systems – Nuclear Power</b> History • Shipboard Uses • Reactor Designs • Cooling Systems • Fuel Systems • Steam Systems • Control Systems • Performance
0930 - 0945	Break
0945 - 1030	<b>Main Propulsion Systems - Reduction Gears</b> Main Shaft Reduction Gearing Components • Gear Tooth Designs and Functions • Jacking Systems • Lube Oil Systems and Cooling • Lube Oil Centrifuge Systems
1030 - 1230	<b>Propeller Shafts &amp; Seals</b> Shaft Design and Support • Shaft Seal Types • Shaft Length and Flexibility
1230 - 1245	Break
1245 - 1330	<b>Ship Propellers</b> Screw Propellers • Water Jets • Voith Schneider Propeller (VSP, also known as Cycloidal Drive) • Ducted Propellers and Bow Thrusters
1330 - 1420	<b>Video Presentation</b>
1420 - 1430	<b>Recap</b> 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, 29<sup>th</sup> of October 2025**

0730 - 0930	<b>Ship Steering &amp; Hydraulic Systems</b> Rudders • Steering Rams • Hydraulic Systems for Valve Control and Automation
0930 - 0945	Break
0945 - 1030	<b>Electrical systems</b> Generators • Power Distribution • Generator Synchronization • Controls
1030 - 1230	<b>Shipboard Evaporators</b> Types • Performance • Reliability
1230 - 1245	Break
1245 - 1330	<b>Bilge, Ballast &amp; Firemain Systems</b> Submersible Pumps • Ballast Tanks • Transfer Systems • Fire Fighting Apparatuses and Layout
1330 - 1420	<b>Video Presentation</b>
1420 - 1430	<b>Recap</b> 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, 30<sup>th</sup> of October 2025**

0730 - 0930	<b>Sewage Treatment System</b> Holding Tanks • Macerators • Aerators • Chemical Treatment and Effluent Types • Maritime Laws on Sewage Discharge (MARPOL)
0930 - 0945	Break
0945 - 1030	<b>Shipboard Piping &amp; Components</b> Pump Types • Valves • Strainers • Seals • Sea chests • Tanks • Gauges



1030 - 1230	<b>Shipboard Air Conditioning Systems</b> Compressors • Evaporators • Controls • Refrigerants • Efficiency and Performance
1230 - 1245	Break
1245 - 1420	<b>Introduction to Ship Design</b> Vessel Motion in Waves • Intact Stability • Hull Girder Strength and Deflection Modes – Hogging and Sagging • Midship Section Calculation • Frames and Watertight Bulkheads • Damaged Stability • Regulatory Bodies
1420 - 1430	<b>Recap</b> 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, 31<sup>st</sup> of October 2025**

0730 - 0930	<b>Shipboard Filtering Systems</b> Fuel oil and Lube Oil Filtering and Cleaning Systems
0930 - 0945	Break
0945 - 1030	<b>Ship Auxiliary Systems</b> Aux. Generators • Auxiliary Steam • Compressed Air • Sea Water Systems
1030 - 1230	<b>Internal Communication Systems</b> Bridge-to-Engine Room Communication • Engine Room Control Station Console • Emergency Response and Damage Control • Crew Responsibilities
1230 - 1245	Break
1245 - 1345	<b>Open Forum</b> Questions and Answer/Discussions
1345 - 1400	<b>Course Conclusion</b> Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course
1400 - 1415	<b>POST-TEST</b>
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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