COURSE OVERVIEW OE0441
General Marine Engineering Knowledge

Course Title
General Marine Engineering Knowledge

Course Date/Venue
Session 1: August 11-15, 2024/The Kooh Al Noor Meeting Room, The H Hotel, Sheikh Zayed Road, Dubai, UAE
Session 2: October 13-17, 2024/Kizkulesi, Crown Plaza Istanbul Asia Hotels & Convention Center, Istanbul, Turkey

Course Reference
OE0441

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

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 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.

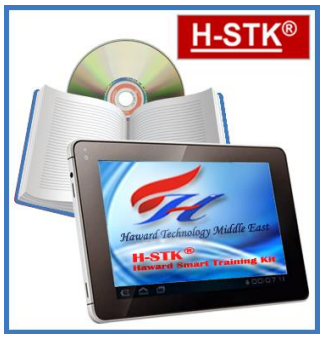
During this interactive course, participants will learn the fundamental knowledge on marine engineering; process and condition of marine engineering systems as well as main propulsion systems including boilers and steam turbines, diesel engines, gas turbines, nuclear power and reduction gears; recognize 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, 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 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

Dubai	**US$ 8,000** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Istanbul	**US$ 8,500** per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

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: -

- 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.

- 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)

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:

Captain Sergey Kole, is an **International Expert** in **Port Operations & Management** with over **20 years** of **onshore** and **offshore** experience within the **Oil & Gas** industry. His expertise evolves in **Marine Terminal Operations** & **Management**, **Marine Hazards Prevention & Control**, **Marine Communication Systems**, **Marine Safety**, **Ship Management**, **Oil Terminal Planning**, **Vessels Operations**, **Terminal Management & Support Operations**, **Oil Spill Contingency & Emergency Response Plan**, **Qualitative & Quantitative Risk Assessments**, **Terminal Planning**, **Oil Tanker Storage Planning**, **Cargo Transfer Handling**, **Loading & Discharging**, **Ballasting**, **Tank Cleaning**, **Crude Oil Washing**, **Ship Handling** and **Radar Navigation**. Further, he is well-versed in **Survival Craft & Rescue Boats**, **Dynamic Positioning**, **Anti-Piracy Preparedness & Response**, **Shipping Maintenance System**, **Oil & Chemical Tanker**, **Liquefied Gas Tanker**, **Inert Gas System**, **Crude Oil Tanker** & **Gas Carrier**, **Offshore Logistics & Supply Management**, **Marine Fleet Management & Operations**, **International Maritime Conventions & Codes**, **Marine Radar**, **Port Traffic Control Systems & Instrumentation**, **H^2S Hazard Awareness**, **Firefighting**, **Medical Care Onboard**, **Carriage of Dangerous & Hazardous Substances**, **Ballast Water & Sediment Management**.

During his career life, Captain Sergey has gained his technical and marine expertise through various challenging and key positions such as the **Captain**, **Port Master**, **Marine/Port Manager**, **Project Manager**, **Port Supervisor**, **Marine Coordinator**, **Operations Director**, **Chief Officer**, **2nd Officer**, **Crewing Consultant** and **Ship Chandler** for several international companies such as **ZADCO**, **Rusalina Yacht Company**, **Jr Shipping**, **Carisbrooke Shipping**, **Unicorn Petrol ve Kimya**, **Q Shipping BV**, **Miedema Shipping CV**, **Rah Management BV**, **Petrobulk Maritime Inc.**, **Empross Lines Ship Management**, **Melcard Ltd.**, **Aquarian Shell Marine Inc.** and **Square Ltd**.

Captain Sergey has a **Bachelor** degree in **Navigation** from the **Kiev State Academy of Water Transport** and **Petrozavodsk River School**, **Ukraine** respectively. He is a **Certified Instructor/Trainer** and has delivered various trainings, courses, seminars, workshops and conferences internationally.

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

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

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

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

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

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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