

COURSE OVERVIEW OE0048
Fundamentals of Tugboat Operations

Course Title

Fundamentals of Tugboat Operations

Course Date/Venue

Session 1: May 12-16, 2025/Fujairah Meeting Room,
 Grand Millennium Al Wahda Hotel, Abu
 Dhabi, UAE

Session 2: October 26-30, 2025/Boardroom 1, Elite
 Byblos Hotel Al Barsha, Sheikh Zayed
 Road, Dubai, UAE



Course Reference

OE0048

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 is designed to provide participants with a detailed and up-to-date overview of Advanced Tugs and Towing Operations/Techniques. It covers the basic to advanced tugs and towing operations and techniques; the tug design and assisting method and the factors influencing tug type and design; the performance and safety of various types of tug; the tug superstructure and underwater design; the relationship between type of tug and assisting method; the tug capabilities, limitation, pivot point, towing point and pushing point; the lateral center of pressure; the direct and indirect towing methods; the transverse resistance of the hull; and the shock absorption characteristics of towline.

During this interactive course, participants will learn to operate height and adjustments covering towing point and pushing point; the bollard pull requirements and factors influencing them; the tug wash effects and environmental conditions; the interaction effects influencing tug performance; the proper protocols, communication, and situational awareness; the techniques and safety measures in passing towline; the forward and stern tug steering broadside best practices and escorting towing operational practices; the side and rudder tugs operations and the factors ensuring stability and mitigating risks; and the advanced technologies in improving tug operations.



Course Objectives

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

- Apply systematic techniques on advanced tugs and towage operations/techniques
- Understand tug designs and assisting methods, factors influencing tug type and design, the types of tug-tug performance and safety and the tug superstructure and underwater design
- Understand assisting methods relationship between type of tug and assisting method\tug capabilities and limitations, pivot point, towing point, pushing point and lateral center of pressure-direct and indirect towing methods
- Reduce the transverse resistance of the hull, reduce the height of the towing point-a towline with good shock absorption characteristics and reduce the height of the pushing point
- Recognize bollard pull requirements and the factors influencing bollard pull requirements\tug wash effects-environmental conditions and displacement
- Understand interacting effects influencing tug performance, tug safety coming alongside and departing from a ship's side, passing a towline near the bow-passing a towline at the stern and forward and stern tug steering broadside
- Escort towing operational practice, braking and steering forces, side and rudder tugs and stability
- Carryout basic to advanced tugs and towage operations and techniques including tug design and assisting method
- Recognize the factors influencing tug type and design as well as the performance and safety of various types of tug
- Illustrate tug superstructure and underwater design and discuss the relationship between type of tug and assisting method
- Identify tug capabilities and limitation as well as pivot point, towing point and pushing point
- Discuss lateral center of pressure and apply direct and indirect towing methods
- Reduce transverse resistance of the hull and describe the shock absorption characteristics of towline
- Operate height adjustments during towing point and pushing point and identify bollard pull requirements and factors influencing them
- Discuss tug wash effects and environmental conditions and interaction effects influencing tug performance
- Apply proper protocols, communication, and situational awareness including the techniques and safety measures in passing towline
- Carryout forward and stern tug steering broadside best practices and escort towing operational practices
- Employ escort towing operational dynamics and best practices as well as side and rudder tugs operations
- Identify the factors ensuring stability and mitigating risks and apply advanced technologies in improving tug operations

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 provides an overview of all significant aspects and considerations of advanced tugs and towage operations/techniques it covers the tugboat captains and masters, tugboat crew members, port pilots, port operations managers, marine engineers, maritime safety and regulatory officials, naval architects and marine surveyors and shipping company executives.

Course Certificate(s)


Internationally recognized certificates will be issued to all participants of the course 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.

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:



Captain Mohamed Ghanem, MSc, BSc, is a Senior Jack-up Barge Captain with extensive experience in Drilling Rigs, Jackup Barge Operations and MODU within the Oil & Gas industry. His expertise widely covers in the areas of Jack-up Barges, Rig Safety Protocols, Drilling Rigs & Jack-up Barges Maintenance & Servicing, Drilling Rig Components, Naval & Marine Engineering, Marine Planning & MODU Stability, Rig Move Operation, UWILD, 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 Terminal Operation, Liquefied Gas Tankers & Jetty Operation, Global Maritime Distress Safety System (GMDSS), International Maritime Conventions & Codes, International Ship and Port Facility Security Code (ISPS) Code, Buoyage System & International Code of Signals, Oil & Gas Marine Terminals, Port Terminals Crisis Management & Major Emergency Response, Marine Hazards Prevention & Control, Single Buoy Mooring System (SBM), Emergency Response Procedure, Oil Spill Management & Recovery, Oil Spill Prevention & Control, Oil Spill Combating Operations, Oil & Gas Marine Terminals, Offshore Marine Operation Management, Vessel Hull & Machinery Survey, Oil & Gas Fields Offshore Survey, Oil & Gas Terminals Loading & Discharging, Terminal Operations, Seamanship, Shipping Overview, Marine Fire Fighting Equipment, Hull Damage Control, Vessel Rescue, Life Saving, Safety Process, Major Emergency Management & Control, Crisis Management during Oil Spill and Firefighting. He is currently the Jack Up Barge Captain & Marine Planner wherein he oversee all the operations onboard the vessel including navigation, maintenance and compliance with local regulations.

During his life career, Captain Mohamed has gained his practical and field experience through his various significant positions and dedication as the **Barge Engineer & Marine Planner Onboard, Trainee Barge Engineer Onboard, Assistant Barge Master II Onboard, Assistant Barge Master Onboard, Design Engineer, Ship Yard Site Engineer/QC Engineer, Marine Draft Surveyor, Ship Repair Engineer, Vessel Repairing Engineer, Metal Cutting & Welding Planner, Marine Engineer Onboard, Technical Manager, Maintenance Mechanical Engineer and Reserve Marine Officer** from the Shelf Drilling Co, Marine & Engineering Consulting, ADMARINE III (X-GSF 103) at ADES, Oceandro Large Yacht Builder, International Inspection Company, Synchrony-Lift Works and B-Tech Company.

Captain Mohamed has **Bachelor's** degree in **Naval Architecture & Marine Engineering** and currently enrolled in **Master's** degree in **Naval Architecture & Marine Engineering**. Further, he is a **Certified Instructor/Trainer, a Certified Trainer, Assessor & Internal Verifier** by the **Institute of Leadership of Management (ILM)** and holds a certificate in **Marine III Engineer** and **OIM & Mobile Offshore Drilling Unit (MODU)**. He is an **active member** of The International Transport Workers' Federation (**ITF**), UK and has delivered numerous courses, workshops, trainings and conferences worldwide.

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 Fee

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.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

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

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| 0730 – 0800 | <i>Registration & Coffee</i> |
| 0800 – 0815 | <i>Welcome & Introduction</i> |
| 0815 – 0830 | PRE-TEST |
| | Introduction |
| 0830 – 0930 | <i>History & Evolution of Tugs • Importance in Modern-Day Marine Operations • Basic to Advanced Tugs & Towing Operations & Techniques</i> |
| 0930 – 0945 | <i>Break</i> |
| | Tug Designs & Assisting Methods |
| 0945 – 1030 | <i>Conventional Tugs versus Tractor Tugs versus Azimuthing Stern Drive (ASD) Tugs • Specialized Tugs: Emergency Response, Icebreaking & More</i> |
| 1030 – 1230 | Factors Influencing Tug Type & Design <i>Ship Size, Canal & Port Dimensions • Traffic Flow & Ship Types in Operation</i> |
| | Types of Tug: Performance & Safety |
| 1230 – 1245 | <i>Tug Stability, Hull Shapes & Propulsion Systems • Safety Mechanisms & Regulations</i> |
| 1230 – 1245 | <i>Break</i> |
| | Tug Superstructure & Underwater Design |
| 1245 - 1315 | <i>Importance of Visibility, Accommodation & Operational Efficiency • Hull Designs & Propulsion Systems</i> |
| 1315 - 1420 | Interactive Session: Case Study on Effective Tug Design <i>Real-life Examples & Lessons Learned</i> |
| 1420 – 1430 | Recap |
| 1430 | <i>Lunch & End of Day One</i> |



Day 2

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|-------------|--|
| 0730 – 0830 | Relationship Between Type of Tug & Assisting Method <i>Matching the Right Tug with the Right Operation</i> |
| 0830 – 0930 | Tug Capabilities & Limitations <i>Understanding Tug Power, Bollard Pull & Maneuverability • Limitations in Various Marine Environments</i> |
| 0930 – 0945 | Break |
| 0945 – 1100 | Pivot Point, Towing Point & Pushing Point <i>Significance & Practical Applications</i> |
| 1100 – 1230 | Lateral Center of Pressure <i>Understanding Forces & Tugboat Positioning</i> |
| 1230 – 1245 | Break |
| 1245 – 1420 | Direct & Indirect Towing Methods <i>The Pros & Cons of Each Method</i> |
| 1420 – 1430 | Recap |
| 1430 | Lunch & End of Day Two |

Day 3

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| 0730 – 0830 | Reducing Transverse Resistance of the Hull <i>Importance & Methods to Achieve</i> |
| 0830 – 0930 | Towline: Shock Absorption Characteristics <i>Materials, Design & Safety Implications</i> |
| 0930 – 0945 | Break |
| 0945 – 1100 | Height Adjustments: Towing Point & Pushing Point <i>The Effects on Tugboat Operations</i> |
| 1100 – 1230 | Bollard Pull Requirements & Factors Influencing Them <i>Determining Bollard Pull Needs Based on Operation Type</i> |
| 1230 – 1245 | Break |
| 1245 – 1315 | Tug Wash Effects & Environmental Conditions <i>Addressing Challenges Posed by Natural Elements & Tug Wash</i> |
| 1315 - 1420 | Hands-on: Evaluating Bollard Pull Requirements <i>Practical Session with Instruments & Data</i> |
| 1420 – 1430 | Recap |
| 1430 | Lunch & End of Day Three |

Day 4

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|-------------|--|
| 0730 – 0830 | Interaction Effects Influencing Tug Performance <i>Hydrodynamics, Ship Interactions & Environmental Factors</i> |
| 0830 – 0930 | Coming Alongside & Departing from a Ship's Side Safely <i>Protocols, Communication & Situational Awareness</i> |
| 0930 – 0945 | Break |
| 0945 – 1100 | Passing a Towline: Bow versus Stern <i>Techniques, Safety Measures & Practical Challenges</i> |
| 1100 – 1230 | Forward & Stern Tug Steering Broadside <i>Best Practices & Real-Life Scenarios</i> |
| 1230 – 1245 | Break |
| 1245 – 1315 | Escort Towing Operational Practices <i>Ensuring the Safety & Efficiency of Operations</i> |
| 1315 - 1420 | Discussion Session: Safety Incidents & Lessons Learned <i>Sharing Experiences & Insights</i> |
| 1420 – 1430 | Recap |
| 1430 | Lunch & End of Day Four |

Day 5

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|-------------|--|
| 0730 – 0930 | Escort Towing: Braking & Steering Forces <i>Operational Dynamics & Best Practices</i> |
| 0930 – 0945 | <i>Break</i> |
| 0945 - 1130 | Side & Rudder Tugs: Their Role & Operations <i>Understanding Specialized Towage Scenarios</i> |
| 1130 – 1230 | Stability in Tug Operations <i>Factors Ensuring Stability & Mitigating Risks</i> |
| 1230 – 1245 | <i>Break</i> |
| 1245 – 1330 | Advanced Technologies in Tug Operations <i>Innovations & Technological Aids Improving Operations</i> |
| 1330 – 1345 | Course Conclusion |
| 1415 – 1430 | POST-TEST |
| 1430 | <i>Lunch & End of Course</i> |

Practical Sessions

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



Course Coordinator

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