COURSE OVERVIEW OE0094
Offshore Structure Platform Design

Course Title
Offshore Structure Platform

Course Date/Venue
Session 1: June 15-19, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: November 10-14, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
OE0094

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 is designed to provide participants with a detailed and up-to-date overview of Offshore Structure Platform Design. It covers the offshore oil & gas production, types of offshore structures and functional requirements and design considerations; the offshore environmental loads and design considerations; the types of offshore platforms and offshore structural materials and selection criteria; the codes and standards for offshore platform design; the offshore structural loads and analysis; the structural analysis techniques for offshore platforms and foundation design for offshore platforms; and the jacket structure design and analysis floating structure design and stability considerations.

During this interactive course, participants will learn the fatigue and fracture analysis in offshore structures; the fire, blast, and explosion considerations in offshore design; the hydrodynamic considerations in offshore structures; the mooring and anchoring system design; the offshore structural integrity management and riser and pipeline interface with offshore platforms; the offshore platform decommissioning strategies and structural modification for platform life extension; the digital twin technology in offshore platform design; the advanced offshore structural safety and risk assessment; the offshore structural fabrication and construction techniques and integration of offshore renewable energy with platforms; and the offshore structural health monitoring (SHM) and IOT applications.

Course Objectives

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

- Apply and gain an in-depth knowledge on offshore structure platform design
- Discuss offshore oil & gas production, types of offshore structures and functional requirements and design considerations
- Recognize offshore environmental loads and design considerations including types of offshore platforms and offshore structural materials and selection criteria
- Review the codes and standards for offshore platform design and apply offshore structural loads and analysis
- Carryout structural analysis techniques for offshore platforms and foundation design for offshore platforms
- Illustrate jacket structure design and analysis floating structure design and stability considerations
- Apply fatigue and fracture analysis in offshore structures as well as fire, blast, and explosion considerations in offshore design
- Recognize hydrodynamic considerations in offshore structures and mooring and anchoring system design
- Carryout offshore structural integrity management and discuss riser and pipeline interface with offshore platforms
- Employ offshore platform decommissioning strategies and structural modification for platform life extension
- Discuss digital twin technology in offshore platform design and apply advanced offshore structural safety and risk assessment
- Carryout offshore structural fabrication and construction techniques and integration of offshore renewable energy with platforms
- Describe offshore structural health monitoring (SHM) and IOT applications

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 on offshore structure platform design for structural engineers, environmental engineers, marine engineers, civil engineers, geotechnical engineers, naval architects, construction, and maintenance of offshore platform as well as in related fields such as offshore operations personnel, construction managers, consultants, and energy sector professionals.

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: -

- 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.

- 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.

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.

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 – 0915	***Introduction to Offshore Structures*** *Overview of Offshore Oil & Gas Production • Types of Offshore Structures (Fixed, Floating, Subsea) • Functional Requirements and Design Considerations • Evolution of Offshore Platform Designs*
0915 – 0930	*Break*
0930 – 1100	***Offshore Environmental Loads & Design Considerations*** *Wind, Wave, and Current Effects on Offshore Platforms • Tidal and Seismic Impact on Platform Stability • Metocean Data Collection and Analysis • Ice and Marine Growth Effects on Structures*
1100 – 1215	***Types of Offshore Platforms*** *Fixed Platforms (Jacket, Gravity-Based, Compliant Towers) • Floating Platforms (FPSO, Semi-Submersibles, TLP, SPAR) • Subsea Production Systems • Hybrid and Innovative Offshore Structures*
1215 - 1230	*Break*
1230 – 1315	***Offshore Structural Materials & Selection Criteria*** *Steel vs. Concrete Offshore Structures • Corrosion Resistance and Coating Systems • Material Selection for Extreme Marine Environments • Composite Materials and Advanced Alloys*

1315- 1420	***Codes & Standards for Offshore Platform Design*** *API RP 2A-WSD & API RP 2A-LRFD • ISO 19902 Offshore Structures Design Standard • DNV-GL Offshore Structural Guidelines • Specific Offshore Design Requirements*
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	***Offshore Structural Loads & Analysis*** *Dead Loads and Live Loads in Offshore Design • Environmental Load Considerations (Wave, Wind, Seismic) • Dynamic Load Effects on Platform Stability • Load Combination and Structural Response Analysis*
0930 - 0945	*Break*
0945-1100	***Structural Analysis Techniques for Offshore Platforms*** *Linear and Non-Linear Analysis Methods • Finite Element Modeling (FEM) for Offshore Structures • Static vs. Dynamic Analysis of Offshore Platforms • Case Study: Structural Simulation of Offshore Jackets*
1100 – 1215	***Foundation Design for Offshore Platforms*** *Types of Offshore Foundations (Piled, Gravity, Suction Caissons) • Geotechnical Considerations in Offshore Foundation Design • Pile Driving Analysis and Installation Techniques • Soil-Pile Interaction and Settlement Analysis*
1215 - 1230	*Break*
1230 - 1315	***Jacket Structure Design & Analysis*** *Design Considerations for Fixed Jacket Platforms • Load Transfer Mechanism in Jacket Structures • Structural Bracing and Fatigue Design Considerations • Corrosion Protection and Maintenance Strategies*
1315 – 1420	***Floating Structure Design & Stability Considerations*** *Hydrostatic and Hydrodynamic Stability of Floating Platforms • Mooring and Anchoring Systems for Floating Structures • Wave Motion Response and Heave Compensation • FPSO Design Considerations for Operations*
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	***Fatigue & Fracture Analysis in Offshore Structures*** *Fatigue Loading in Offshore Environments • Fracture Mechanics and Crack Propagation Analysis • Fatigue Life Prediction for Offshore Components • Design for Fatigue Mitigation and Crack Arresting Strategies*
0930 - 0945	*Break*
0945 - 1100	***Fire, Blast & Explosion Considerations in Offshore Design*** *Fire Protection Standards for Offshore Platforms • Blast Load Considerations and Mitigation Strategies • Structural Integrity Against Hydrocarbon Explosions • Case Study: Piper Alpha Disaster and Lessons Learned*

1100 - 1215	***Hydrodynamic Considerations in Offshore Structures*** *Wave Loading and Wave-Structure Interaction • Offshore Structural Response to Hydrodynamic Forces • Modeling of Wave Impact on Offshore Installations • Computational Fluid Dynamics (CFD) in Offshore Design*
1215 -1230	*Break*
1230 - 1315	***Mooring & Anchoring System Design*** *Types of Mooring Systems (Spread Mooring, Turret Mooring, Single-Point Mooring) • Load Analysis for Mooring System Selection • Mooring Line Fatigue and Corrosion Protection • Tension Leg Platform (TLP) Mooring System Considerations*
1315 - 1420	***Offshore Structural Integrity Management*** *Structural Health Monitoring (SHM) for Offshore Platforms • Inspection Techniques for Offshore Structural Integrity • Risk-Based Inspection (RBI) Planning for Offshore Facilities • Best Practices in Structural Maintenance*
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

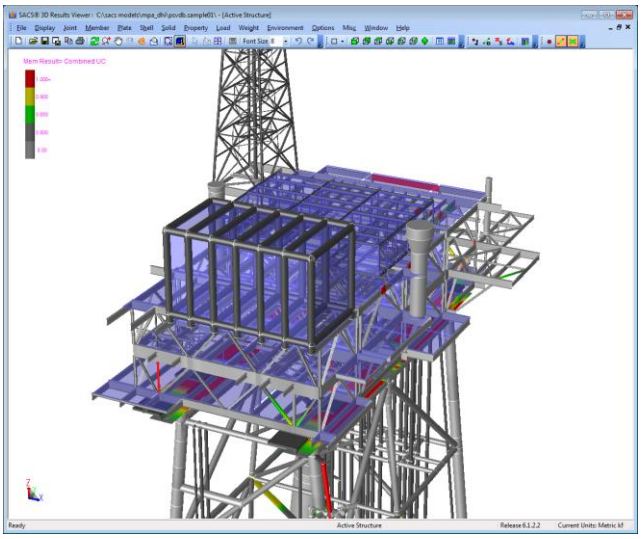
0730 – 0930	***Riser & Pipeline Interface with Offshore Platforms*** *Riser System Design and Engineering Considerations • Dynamic Loading and Fatigue Analysis for Risers • Pipeline Routing and Installation Challenges • Interface Management Between Subsea and Topsides Systems*
0930- 0945	*Break*
0945 - 1100	***Decommissioning & Life Extension of Offshore Platforms*** *Offshore Platform Decommissioning Strategies • Structural Modification for Platform Life Extension • Cost-Benefit Analysis for Decommissioning vs. Redeployment • Case Study: Decommissioning of North Sea Platforms*
1100 - 1215	***Case Study on Offshore Structural Failures*** *Case Study: BP Thunder Horse Platform Incident • Case Study: Alexander Kielland Semi-Submersible Disaster • Case Study: Platform Structural Retrofit • Lessons Learned for Future Offshore Platform Design*
1215 - 1230	*Break*
1230- 1315	***Digital Twin Technology in Offshore Platform Design*** *What is a Digital Twin? • Using Digital Twins for Offshore Asset Management • Benefits of Predictive Maintenance with Digital Twins • Digitalization Initiatives for Offshore Facilities*
1315 - 1420	***Finite Element Analysis (FEA) for Offshore Structural Simulation*** *Introduction to FEA in Offshore Structural Design • Structural Performance Prediction Using FEA • Case Study: FEA Modeling of Offshore Jacket Structures • Software Tools for Offshore FEA Simulations*
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	***Advanced Offshore Structural Safety & Risk Assessment*** *Risk-Based Structural Integrity Management (RBSIM) • HAZOP and HAZID in Offshore Platform Safety • Emergency Response Planning for Offshore Structural Failures • Risk Assessment Framework for Offshore Platforms*
0930 - 0945	*Break*
0945 -1100	***Offshore Structural Fabrication & Construction Techniques*** *Offshore Fabrication Yards and Their Capabilities • Welding and Corrosion Protection Methods • Modular Construction vs. On-Site Fabrication • Offshore Platform Construction Guidelines*
1100 - 12515	***Integration of Offshore Renewable Energy with Platforms*** *Offshore Wind Turbines Co-Existing with Oil & Gas Platforms • Floating Solar Technology for Offshore Power Supply • Hybrid Renewable and Hydrocarbon Platform Designs • Case Study: Hybrid Offshore Energy Systems*
1215 - 1230	*Break*
1230 1300	***Offshore Structural Health Monitoring (SHM) and IoT Applications*** *Smart Sensors for Real-Time Structural Monitoring • IoT-Based Condition Monitoring for Offshore Platforms • AI and Machine Learning for Structural Data Analysis • Future Trends in Offshore Structural Monitoring*
1300- 1330	***Case Studies in Offshore Structural Design*** *Offshore Jacket Platform Design Case Study • FPSO and Semi-Submersible Platform • Best Practices in Offshore Structural Maintenance*
1330 -1345	***Practical Offshore Structural Design Workshop (cont'd)*** *Design a Fixed Offshore Platform Using API 2A Standards • Perform a Load Analysis for an Offshore Jacket Structure • Conduct a Finite Element Analysis (FEA) on an Offshore Component •Case Study Review and Group 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*

Simulator (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the "Offshore Structural Analysis Computer System (SACS®)" simulator.



Offshore Structural Analysis Computer System (SACS®)

Course Coordinator

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