COURSE OVERVIEW OE0114-4D
Offshore Engineering & Subsea Construction

Course Title
Offshore Engineering & Subsea Construction

Course Date/Venue
Session 1: August 12-15, 2024/Al Aziziya Hall, The Proud Hotel Al Khobar, Al Khobar, KSA
Session 2: November 04-07, 2024/Club B Meeting Room, Ramada Plaza by Wyndham Istanbul City Center, Istanbul, Turkey

Course Reference
OE0114-4D

Course Duration/Credits
Four days/2.4 CEUs/24 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.

Offshore engineering encompasses all forms of engineering found on land, but with the added difficulty of often being situated on an isolated structure which has to be self-sufficient to a high degree for energy, food, water, materials, equipment, labour and expertise. Furthermore, this structure is usually located in a very harsh environment – deep water, heavy seas, severe weather, marine saline atmosphere – and far away from external assistance and a safe location to escape to should the need arise. Offshore engineers have to live and work in this setting despite these disadvantages and perform their jobs to a very high standard, knowing that there is less margin for error in the unforgiving environment. Mistakes may cost millions of dollars, cause significant pollution or damage to the environment, or lead to injury and even death.

Offshore Engineers play a vital role in the delivery of the many complex and challenging projects being developed today and they can do this because of their problem-solving skills. A trained engineer has the ability to model and solve a problem, describe and deliver an economical solution and then supervise and manage the work through to completion.

The end product needs to be feasible, economical, safe, delivered on time and to budget, while also being respectful of the environment and not wasteful in use of materials - a tough wish list. All of this takes a special combination of aptitude, knowledge, vision and commitment.

Offshore Engineers perform various tasks on wide variety of departments. They are involved in the identification and extraction of oil and gas from the reservoirs beneath the seabed. They design and install subsea pipelines and offshore structures. They are responsible for the design, construction and testing of subsea vessels and their efficient operation. While doing these activities, they have to keep in check about the pollution or damage they are causing to the environment. There are totally responsible for maximum efficiency of the production and cost reduction. They also act as safety engineers, ensuring all jobs performed in a safe and efficient manner.

This course is designed to introduce participants to the fundamental concepts of offshore engineering. The course will cover the vital activities that the offshore engineer usually performs during an offshore project including the design, construction, operation, maintenance and inspection of offshore structures and subsea pipelines within an offshore oil and gas field.

Course Objectives

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

- Apply and gain an in-depth knowledge of offshore engineering and subsea construction
- Discuss the offshore petroleum industry, layout of offshore fields, wellhead, X-mas tree and conductors
- Calculate the environmental and oceanographic forces including wind, wave, tides and current
- Identify the materials for offshore platforms, subsea pipelines and risers
- Perform all the activities involved in the design of offshore platforms, welding and fabrication of offshore platforms and the utilization of barges, vessels and tugs (marine spread)
- Employ proper transportation of offshore platforms to site, proper installation and hookup of offshore platforms
- Demonstrate piling and grouting operations and recognize topside layout piping and equipment
- Lay subsea pipelines and design weight coating, corrosion coating and anodes (sacrificial and impressed current types)
- Implement proper stacking and transportation of pipes and employ correct pipelay barge operations
- Calculate the on-bottom stability of subsea pipeline and correct free span
- Install cathodic protection systems for subsea pipelines, risers and offshore platforms

- Carryout pipeline drying, purging, pigging and hydrotesting and discuss tie-ins engineering, hyperbaric welding and commissioning of pipelines and offshore structures
- List the project fleet, marine spread, equipment and manpower
- Carryout systematic techniques on marine operations and anchor handling as well as diving and ROV operations and offshore surveying
- Perform accurate inspection and maintenance of offshore structures and subsea pipelines

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 engineers from oil and gas companies, construction companies, pipe and service suppliers and regulatory authorities, who are newly qualified, have recently moved into offshore engineering or hold broad responsibilities that include offshore operations or offshore project management and engineering.

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

Al Khobar	**US$ 6,750** 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$ 7,250** 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 **2.4 CEUs** (Continuing Education Units) or **24 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.

Accommodation

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

Course Instructor

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. Magdy Tawfik, MSc, BSc, is a **Senior Offshore Engineer** with over **25 years** of extensive industrial experience in **inspection** & **maintenance of subsea pipeline** & **offshore structure**, **pipeline inspection**, **integrity assessment**, **maintenance** and **pigging technology** within the **offshore/onshore oil**, **gas** and **petrochemical** industries. He is considered as an **International Expert** in the **different aspects** of **pipeline inspection**, **integrity assessment**, **cost engineering**, **maintenance**, **pigging & monitoring**, including **intelligent pigging**, **ROV**, **radiography & ultrasonic pipeline inspection**, **pipeline pigging**, the development of **new pipeline pigging systems**, **pigging technology & equipments**, the operation of **existing systems**, **pig selection**, **pigging sequences**, the utilization of **inline inspection tools**, and the **equipment post-installation**, **commissioning**, **preventive maintenance**, **overhauling** and **troubleshooting**.

Mr. Tawfik had been for so many years, the **Director** for **Pigging Operations** for one of the **largest maintenance petroleum companies** in the **Middle East**. Herein, he had gained broad and comprehensive experience in the **technical** and **operational areas** of **pipeline pigging**, its **techniques** and **latest technologies** applied in the **oil** and **gas industry**. Further, he was the **Manager** of the **Offshore Operations** wherein he was tasked to set the **required regulations** and **systems to ensure the best performance**, **direct** the **day-to-day maintenance operations for offshore pipelines & risers**. This included **inspection**, **pigging**, **maintenance** and **rehabilitation**. Further, he was in charge of the **maintenance** and **revamp projects**.

Mr. Tawfik has **Master** and **Bachelor** degrees in **Mechanical Engineering**.

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 – 0900	***Offshore Oil & Gas Industry***
0900 – 0930	***Layout of Offshore Fields***
0930 – 0945	*Break*
0945 – 1045	***Wellhead, X-mas Tree & Conductors***
1045 – 1200	***Environmental & Oceangraphic Forces: Wind, Wave, Tide & Current***
1200 – 1215	*Break*

1215 – 1300	***Materials for Offshore Platforms***
1300 – 1420	***Materials for Subsea Pipelines & Risers***
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Design of Offshore Platforms***
0830 – 0930	***Welding & Fabrication of Offshore Platforms***
0930 – 0945	*Break*
0945 – 1030	***Barges, Vessels & Tugs***
1030 - 1115	***Transportation of Offshore Platform to Site***
1115 - 1145	***Installation & Hookup of Offshore Platforms***
1145 - 1230	***Piling & Grouting Operations***
1230 - 1245	*Break*
1245 - 1315	***Topside Layout of Piping & Equipment***
1315 - 1345	***Riser Design & Installation***
1345 - 1420	***Subsea Pipeline Design***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Weight Coating, Corrosion Coating & Anods***
0830 – 0930	***Stacking & Transportation of Pipes***
0930 – 0945	*Break*
0945 – 1030	***Pipelay Barge Operations***
1030 - 1115	***On-Bottom Stability of Subsea Pipeline***
1115 - 1145	***Free Span Correction***
1145 - 1230	***Cathodic Protection of Subsea Pipeline, Riser & Offshore Platform***
1230 - 1245	*Break*
1245 - 1315	***Pipeline Drying, Purging, Pigging & Hydrotesting***
1315 - 1345	***Tie-Ins Engineering & Hyperbaric Welding***
1345 - 1420	***Commissioning of Pipelines & Offshore Structures***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Project Fleet, Marine Spread, Equipment & Manpower***
0830 – 0930	***Marine Operations & Anchor Handling***
0930 – 0945	*Break*
0945 – 1045	***Diving & ROV Operations***
1045 – 1200	***Offshore Surveying***
1200 – 1215	*Break*
1215 – 1300	***Inspection & Maintenance of Offshore Structure***
1300 – 1330	***Inspection & Maintenance of Subsea Pipelines***
1330 - 1345	***Course Conclusion***
1345 – 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

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org