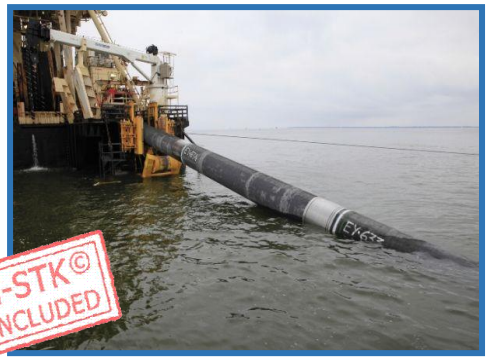
COURSE OVERVIEW OE0320

Subsea Pipelines & Offshore Structures

Inspection, Maintenance & Repair

Course Title

Subsea Pipelines & Offshore Structures:
Inspection, Maintenance & Repair



Course Reference

OE0320

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

Course Date/Venue

Session(s)	Date	Venue
1	February 16-20, 2025	Slaysel 02 Meeting Room, Movenpick Hotel & Resort Al Bida'a Kuwait, City of Kuwait
2	July 13-17, 2025	Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar
3	November 09-13, 2025	Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar

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 outlines the hazard, consequences and risks associated with operation of offshore structures and pipelines, details the conventional and stress-associated degradation mechanisms and the range of inspection and testing methods that can be applied.

The options for degradation control are presented with case histories of both failures and successes. Where pro-active maintenance has been ineffective then the course details typical cost-effective repair procedures that are available. Particular emphasis is placed on pipeline networks where it is necessary to combine statistical analyses with modeling to prioritize the inspection programme.

Corrosion monitoring requirements are covered and the possible advantages of advanced monitoring techniques are outlined. Cathodic protection surveying and retrofitting are also detailed in the light of the new CP design code for submarine pipelines. As part of the course the delegates will be expected to partake in an inspection programme planning exercise.

Course Objectives

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

- Inspect, maintain and repair subsea pipelines and offshore structures in professional manner
- Discuss the methodologies of Inspection, Maintenance and Repair (IMR) and identify the types of risk assessment approach used in IMR
- Explain the structural failure modes of jackets including fatigue, risers, dropped objects, pipeline jacking and scour mechanisms
- Employ the various procedures in the inspection and repair of subsea pipelines and offshore structures
- Enumerate corrosion issues covering seawater corrosion and corrosion under marine fouling as well as explain its recommended practices
- Discuss subsea pipelines particularly their construction and list down some case histories of problems encountered during pipeline construction
- Employ systematic procedures of hydrotesting and recognize its importance as an inspection tool
- Describe the concept of free span including the use of sidescan sonar and laser camera systems in evaluation and repair of free spans
- Explain the on-bottom stability by describing the design of weight coatings and identifying the impact of climate change on pipeline stability and the additional provisions on bottom stability
- Determine the various subsea pipeline failures and the different methods of repair of damaged subsea pipelines
- Explain the concept of cathodic protection including the design codes, methods of CP surveying, analysis of data and coating condition
- Describe internal corrosion comprising its morphology, inspection, monitoring and evaluation
- Identify the various types of pigging and explain their features, functions and limitations
- Implement the statistical methods used in corrosion data evaluation and the various procedures used in the prevention of corrosion
- Carryout methods of cathodic protection retrofitting and demonstrate the calculation method to evaluate protection limits

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 a wide understanding and deeper appreciation on inspection, maintenance and repair of subsea pipelines and offshore structures for structural, pipeline and subsea engineers as well as integrity, corrosion, inspection and maintenance engineers. The risk assessment approach will have direct relevance to the work of planning and project engineers and to the managers charged with control and prioritization of the inspection and control programmes.

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

Kuwait	**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.
Doha	**US$ 8,500** per Delegate. 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

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:

Mr. Dino Glavina, MSc, is a **Senior Master Marine Engineer** with over **20 years** of extensive within the **Oil & Gas** and **Marine** industries. His expertise widely covers in the areas of **Offshore Marine** Operations, **Offshore Safety**, **Marine Environment Protection**, **Offshore Maintenance** Management, **Navigation**, **Ship** Operation & Control, **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, **Seafarer** Designated Security, **Dynamic Positioning**, **Survival Craft & Rescue Boat Operations**, Further Offshore Emergency Training (**FOET**), Helicopter Underwater Escape Training (**HUET**), **Bridge Team** Management and **Bridge Resource** Management.

Mr. Glavina has gained his practical and field experience through his various significant positions and dedication as the **Marine & HSE Superintendent**, **Platform Manager**, **Barge Master**, **Captain**, **Towing Master**, **Unlimited Master License**, **Mooring Master**, **Offshore Marine Instructor**, Officer of the Watch (**OOW**) and **Senior Instructor/Trainer** from various companies such as the RST Global Solutions, African Offshore Services Ltd. and Oil Tanker & LNG Vessels.

Mr. Glavina has a **Master's** degree in **Maritime Engineering** (**Nautical Science & Maritime Safety**) from the **University of Rijeka**, **Croatia**. Further, he is a **Certified Instructor/Trainer** and holds a **Master of a Ship of 3000 GT Certificate** from the Standards of Training, Certification, and Watchkeeping **(STCW)** for **Seafarers**. He has delivered various trainings, seminars, conferences, workshops and courses globally.

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	***Introduction to Inspection, Maintenance & Repair (IMR)*** *Risk Assessment Approach ● IMR Philosophy ● Priorities ● Corrosion Risk Assessments ● Qualitative and Quantitative Approaches*
0900 – 1000	***Risk Assessment Exercise***
1000 – 1015	*Break*
1015 – 1100	***Structures Overview*** *Function and Construction of Jackets; Construction Codes, Geotechnical Issues, Installation of Risers ● Subsea Completions*

1100 – 1200	***Structural Failure Modes of Jackets*** *Enhanced Loading by Marine Fouling ● Fatigue ● Evaluation of Fatigue Loading at Nodes ● Fatigue of Risers ● Riser Clamps ● Dropped Objects ● Pipeline Jacking ● Scour Mechanisms*
1200 – 1215	*Break*
1215 – 1315	***Inspection & Repair Procedures*** *Diver Surveys ● Cleaning off of Marine Growths ● Magnetic Particle Inspection ● Structural Engineering ● Scour Prevention*
1315 – 1420	***Corrosion Issues*** *Design Codes ● Recommended Practices ● Seawater Corrosion ● Corrosion Under Marine Fouling ● Interactions Between Pipelines and Jackets ● Coatings and Cathodic Protection*
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 – 0830	***Pipelines Overview*** *Construction of Pipelines ● Relevance of Construction Codes to Safety and Reliability ● Contract Strategy and the Implications to Pipeline Functionality ● Geopigs and Geographical Information Systems ● Pipeline to Riser Transitions ● Crossings*
0830 - 0945	***Construction Issues*** *Case Histories of Problems Encountered During Pipeline Construction*
0945 – 1000	*Break*
1000 – 1100	***Hydrotesting*** *Initial Hydrotesting Philosophy ● Use of Hydrotesting as an Inspection Tool ● Golden Welds and Flange Connections ● Flexible Pipe*
1100 – 1200	***Spans*** *Use of Sidescan Sonar ● Laser Camera Systems ● Evaluation of Spans ● Repair of Spans ● Control of Vortex-Induced Vibration*
1200 – 1215	*Break*
1215 – 1315	***Spans Assessment Exercise***
1315 – 1420	***Discussion of Conclusions of Assessment Exercise***
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 – 0830	***On-Bottom Stability*** *Design of Weight Coatings ● Impact of Weather/Climate Change on Pipeline Stability ● Provision of Additional on Bottom Stability ● Case Studies*
0830 – 0930	***On-Bottom Stability Design Exercise***
0930 – 0945	*Break*
0945 – 1115	***Pipeline Failure Case Histories*** *Case Histories of Pipeline Failures ● How Identified, Repair Procedures Used, Alternative Options*

1115 – 1200	***Pipeline Failure Case Histories***
1200 – 1215	*Break*
1215 – 1315	***Pipeline Repair*** *Methods of Repair of Damaged Pipelines ● Stopples ● Pipe Freezing ● Magic Flanges ● Installation of Pipeline Sections ● Design and Use of Platelets for Sealing Pipeline Leaks*
1315 - 1420	***Repair Design Exercise***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0830	***Cathodic Protection*** *Design Codes ● Methods of CP Surveying ● Video Surveys ● Analysis of the Data ● Coating Condition Evaluation from CP Surveys*
0830 – 0930	***eying of Jacket Cathodic Protection*** *Diver Surveys ● Dropped Reference Electrode ● Transponders ● CP Retrofitting*
0930 – 0945	*Break*
0945 – 1045	***Jacket Risk Assessment Exercise***
1045 – 1130	***Internal Corrosion*** *Corrosion Morphology ● Risk Based Inspection Methodology ● Monitoring of Internal Corrosion ● Use of Chemical Analysis ● Microbiological Evaluations ● Evaluation of Pigging Debris*
1130 – 1145	*Break*
1145 – 1300	***Housekeeping Pigging*** *Types of Pigs ● Limitation of Pigs ● When to Use Pigs and the Type of Pig to Use ● Evaluation of Debris from Pipelines ● Stuck Pigs ● Damage to Pigs*
1300 – 1420	***Intelligent Pigging*** *Magnetic Flux Pigs ● Ultrasonic Pigs ● Special Pigs for Cracking, Longitudal Defects, Heavy Schedule Pipe (Thick Wall) ● Preparation for Intelligent Pigging*
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 – 0830	***Intelligent Pigging Assessment Exercise***
0830 – 0930	***Corrosion Data Evaluation*** *Statistical Methods ● Trend Analysis ● Qualitative and Semi-Quantitative Corrosion Risk Assessments ● ASME B31G and Other Defect Assessment Techniques*
0930 – 0945	*Break*
0945 – 1045	***Corrosion Data Evaluation Exercise***
1045 – 1130	***Prevention of Corrosion*** *Corrosion Inhibition ● Evaluation of Corrosion Inhibitors by Laboratory Testing ● Field Testing of Inhibitors ● Biocide Evaluation ● Field Testing of Biocides*
1130 - 1145	*Break*

1145 - 1245	***Cathodic Protection Retrofitting*** *Retrofitting to Structures ● Impressed Current Systems ● Retrofitting on Pipelines Using Rafts ● Calculation Methods to Evaluate Protection Limits*
1245 - 1345	***Pipeline CP Retrofit Exercise***
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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