COURSE OVERVIEW OE0030
Commercial Diving Technology

Course Title
Commercial Diving Technology



Course Date/Venue
Session 1: July 04-08, 2027/Meeting Plus 9, City Centre Rotana Doha Hotel, Doha, Qatar
Session 2: November 28-December 02, 2027/Meeting Plus 9, City Centre Rotana Doha Hotel, Doha, Qatar



Course Reference
OE0030

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.

Offshore Oil & Gas industry has progressed far beyond any earlier expectations, thanks to the fast paced technological development and the brave offshore people who dedicated their knowledge and efforts to achieve this result. The story of oilfield diving illustrates the complex interplay between human and technical achievements and is an important component of the history of the offshore oil and gas industry. The first offshore diving operations decades ago were little more than topside jobs completed underwater. Men recall jumping off boats, barges, and platforms to retrieve dropped objects, install clamps, or check for oyster beds. At that time, they did not have, nor perceive a need for, formal training as divers. The offshore Oil & Gas industry could not have progressed as it did, had it not been for the adventurous and entrepreneurial spirit of the Offshore Commercial divers.

Offshore Commercial divers perform underwater activities related to construction, inspection, search, salvage, repair and photography within Offshore Oil and Gas fields. They perform underwater welding; assistance in the construction and inspection of offshore platforms; installation, inspection and repair of subsea pipelines and valves; and many other diving support activities. They use specialized equipment such as diving helmets, underwater cutting torches, underwater welding equipment, wet-suits, dry-suits, hot water heated suits, diving bells, decompression chambers, full face masks, air compressors, HP water jet machines, underwater inspection instruments, jack hammers, bolt tensioning machines and many other subsea tools and equipment.

Owing to several aspects of the work involved, commercial diving has been divided into several classifications. Within these classifications there may be specialty diving and work qualifications. The two major areas of work; therefore the main classifications; are Offshore Diving and Inland Diving. Offshore Diving is the most well known branch of commercial diving, with divers working in support of the exploration and production sector of the oil and gas industry. The work in this area of the industry typically revolves around the maintenance of oil platforms and the building of underwater structures used in the production process. Offshore Diving is divided into two main types, Surface-Oriented Diving (Air & Gas) and Saturation Diving. In Surface-Orientated Diving, divers in helmets work underwater, connected to a breathing apparatus on board a ship, barge, or platform. Saturation Diving is more useful for large-scale construction projects. In Saturation Diving, divers use a pressurized chamber, sometimes known as a Deep Diving System (DDS), attached to a diving bell. The chamber and bell begin on board a ship. A team of divers boards the chamber, which is then mechanically pressurized to simulate the environment at the depth of the planned dive. The chamber is a complete living environment—equipped with beds, shower, and furniture—and able to accommodate a team of divers for weeks.

This course is designed to provide participants with a complete and an in-depth overview of the Offshore Commercial Diving Technology. It covers Introduction to Offshore Commercial Diving, Diving Physics and Physiology, Decompression, Medical Aspects of Diving, Diving Equipment, Diving Techniques and Procedures, Characteristics of a Good Dive Crew, Air Diving, Mixed Gas Diving, Saturation Diving, Hyperbaric Chamber, Underwater Work & Applications, Diving Support in Offshore Oil & Gas Industry, Underwater Welding, Underwater Burning, Safety Considerations, Cold Cut, Venting, Depth and Time Considerations, Subsea Non-Destructive Testing, and Underwater Weld Inspection and Reports. The course is designed for technical and non-technical personnel dealing with Offshore Commercial Diving in Oil and Gas companies such as managers, engineers, administration and Supervision Staff. The course will not teach you how to dive, but will provide you with invaluable knowledge and skills of how commercial divers perform their work and what they can and cannot do. It will provide you with updated knowledge about the possibilities, scenarios, restrictions tips and tricks of an offshore commercial diving work, together with the rules, standards and regulations that control the diving activities such as the UK-HSE and IMCA.

Course Objectives/Outcomes & Benefits for the Participants

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

- Apply and gain a comprehensive knowledge on commercial diving
- Discuss the process of decompression and explain the medical aspects of diving
- Identify the various diving equipment used and to determine the different techniques and procedures in commercial driving
- Explain the characteristics of a good dive crew and acquire in-depth knowledge on air diving, mixed gas diving and saturation diving
- Become acquainted with the hyperbaric chamber and employ the various underwater work and applications
- Determine the diving support in offshore oil and gas industry and apply underwater welding and burning
- Emphasize the safety considerations in offshore commercial diving and discuss venting
- Identify the depth and time considerations in commercial diving and perform subsea non-destructive testing
- Recognize the scope of underwater weld inspection and reports

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 commercial diving technologies for technical and non-technical personnel dealing with offshore commercial diving in oil and gas companies. This includes managers, engineers, and administration and supervision staff. Further, the course is important for applied scientists and technologists interested in offshore commercial diving technology.

Training Methodology

Our courses employ an interactive, learner-centred methodology that integrates theoretical knowledge with practical application. The training is delivered through a suitable combination of some or all of the following methods, selected according to the course content and learning objectives:

- Instructor-led presentations and facilitated discussions
- Practical workshops and participant presentations
- Hands-on exercises and real-world case studies
- Equipment demonstrations and technical drawings
- Hardware- and software-based simulations
- Gamification & Role Play in soft-skills courses only
- Virtual Reality (VR) and Augmented Reality (AR)
- Instructional videos and other relevant training resources

This blended approach encourages active participation, strengthens practical skills and supports the effective application of acquired knowledge in the workplace.

Learning Design & Customization

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

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

Haward's 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**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). 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. David Rossi, MSc, BSc, is a **Senior Subsea Engineer** with over **30 years** of offshore experience. He is an **International Expert** in Construction, Repair, Inspection, Maintenance and Survey of **SPMs**, **Wellhead Platforms**, **Subsea Pipelines**, **Remotely Operated Vehicle** (**ROV**), **Commercial Diving Operations, Risers** and **Offshore Structures**. Currently, he is the **Operations Manager** of **Maritime Research**. For decades, he had performed **offshore projects** using **derricks**, **lays**, **dredges & material barges**, **jack-up rigs**, **semi-submersibles**, **various size boats** and **shore installations**.

Mr. Rossi has **Master** and **Bachelor** degrees in **Engineering** and holds a **U.S. Coast Guard Masters License**. He is also a **Certified Instructor/Trainer**, an active and well-respected member of the **American Society for Mechanical Engineers** (**ASME**), the **International Association for Offshore Contractors** (**IAOC**), the **Association of Diving Contractors**, the **Houston Area Contractors Council**, the **American Society for Nondestructive Testing** (**ASNT**) and the **Environmental Protection Agency** (**EPA**).

Course Fee

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 Program

The following program is planned for this workshop. 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 – 0945	***Introduction to Offshore Commercial Diving*** *The First Commercial Divers ● Modern History of Commercial Diving ● Types of Commercial Diving ● Diving Rules, Standards & Regulations (UK-HSE and IMCA) ● Diving Communications*
0945 – 1000	*Break*
1000 – 1130	***Diving Physics & Physiology*** *Effects of Pressure ● Breathing Media ● Buoyancy ● Gas Laws ● Dive Charting ● USA NAVY Tables*
1130 – 1245	***Decompression*** *Decompression Principles ● Standard Air Decompression Tables (USA NAVY) ● Repetitive Dive Procedures ● Water Stops ● Surface Decompression – Oxygen ● 50/50 Nitrox Decompression In-Water*

1245 – 1300	*Break*
1300 – 1420	***Medical Aspects of Diving*** *Physiological Effects of Pressure ● Diving Diseases and Injuries - Prevention and Treatment ● Oxygen Treatment Tables ● Altitude, Flying and Decompression ● Disease Diagnosis and Emergency Procedures*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0900	***Diving Equipment*** *Types of Diving Outfits and Their Uses (Masks, Suits, Helmets, Emergency Bail-Out/Come Home Procedures) ● Diving Helmet and Mask Maintenance and Repair ● Thermal Considerations*
0900 – 0915	*Break*
0915 – 1045	***Diving Techniques & Procedures Characteristics of a Good Dive Crew*** *Dressing and Undressing the Diver ● Tenders' Duties and Responsibilities ● Water Entry and Descent ● Working On Bottom (Mud, Holes and No Visibility) ● Signals and Communication ● Ascent Procedures - Rate and Decompression Stops ● Dive Charts and Time Keeping ● Familiarization Dives*
1045 – 1230	***Air Diving*** *Applications ● Equipment and Maintenance ● Testing Requirements ● IMCA & HSE Qualifications & Requirements*
1230 – 1245	*Break*
1245 – 1420	***Mixed Gas Diving*** *Advantages of HeO2 in Deep Diving (HeO2 Decompression Tables) ● Surface Decompression Procedures ● Emergency Decompression Tables ● Gas Pressures and Back-Up Systems ● Analyzing Gases*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0900	***Saturation Diving*** *History and Depth Advantages ● Work Product Advantages ● Unlimited Excursions ● Decompression ● Treatment Procedures ● Weather Advantages and Limitations ● Bell Rescue Procedures ● Hyperbaric Life-Rafts*
0900 – 0915	*Break*
0915 – 1045	***Hyperbaric Chamber*** *Requirements ● Formulas for Air Requirements ● Locking In and Out Procedures ● Decompression Runs ● Treatment Tables and Procedures*
1045 – 1230	***Underwater Work & Applications*** *Hydraulic and Pneumatic Tools ● Pipe Assembly and Use of Hand Tools ● Inspections and Surveys ● Flange and Valve Assemblies ● Air Lifts ● Riser Clamp, Riser Installation, Flange Work, J Tubes ● Hand Jetting ● Jet Sleds*
1230 – 1245	*Break*
1245 – 1420	***Diving Support in Offshore Oil & Gas Industry*** *Platform Installation, Inspection & Repair ● Pipe laying & Riser Installation ● Inspections and Live Boating ● Structure Placement ● Structure Removal ● Blowout Preventers ● Drilling Support ● Photographic Inspection ● Crain Movement and Safe Usage*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0900	***Underwater Welding*** *Oxy/Arc Cutting Equipment and Techniques ● Metallic Arc Cutting Techniques ● Wet Welding Techniques ● Hyperbaric Welding Techniques ● U/W Welding Habitat Set-Up ● Hot Tap Procedures*
0900 – 0915	*Break*
0915 – 1100	***Underwater Burning Safety Considerations Cold Cut Venting Depth and Time Considerations***
1100 – 1230	***Dive Accident Case Studies & Liability***
1230 – 1245	*Break*
1245 – 1420	***Dive Accident Re-Enactment Video & Safety Discussion***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0930	***Subsea Non-Destructive Testing*** *Origin and Nature of Defects (Basic Metallurgy & Evaluation of Defects)*
0900 – 0915	*Break*
0915 – 1045	***Underwater Weld Inspection & Reports*** *Field Terminology ● Overview of Non-Destructive Testing ● Log Keeping ● Recording Data ● Report Drawing, Sketching and Report Writing*
1045 – 1230	***Case Studies of Specific Dive Operations***
1230 – 1245	*Break*
1245 – 1345	***Working Diver Chronicles, Handouts & Discussions***
1345 – 1400	***Course Conclusion***
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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