AMERICAN GLOBAL INSTITUTE
FOR PRIVATE TRAINING

External Training Course

Subsea & Marine Design, Operation and Maintenance

From 23 Jun. To 27 Jun. 2025
From 01 Sep To 05 Sep. 2025
From 03 Nov. To 07 Nov. 2025

Clayton Hotel Manchester City Centre
Manchester, UK

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External Training Course:

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Course Introduction:

The offshore oil and gas industry increasingly relies on advanced subsea and marine systems to develop deepwater fields safely and efficiently. These systems must withstand harsh environments while maintaining long-term integrity and performance. As operations move to deeper and more complex locations, professionals must be equipped with a comprehensive understanding of subsea and marine design, operational practices, and maintenance strategies. This intensive 5-day training course is designed to provide participants with a thorough grounding in the essential elements of subsea engineering and marine operations. From the fundamentals of subsea production systems to advanced maintenance techniques and integrity management, the course delivers a balanced mix of theoretical knowledge and practical insights. Participants will explore real-world case studies, gain exposure to industry standards (such as API, DNV, and ISO), and engage in hands-on workshops to reinforce their learning. Whether involved in the design phase, operations, or lifecycle maintenance of subsea assets, this course will enhance participants' ability to ensure safe, reliable, and cost-effective offshore developments.

Course Overview:

By the end of the course, participants will be able to:

- Understand key principles of subsea and marine system design.
- Gain insights into operational requirements and risk management.
- Apply best practices in maintenance and inspection of subsea equipment.
- Analyze failure modes and implement integrity management strategies.
- Navigate applicable industry standards and technologies for subsea operations.

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Course Outline:

Day 1: Fundamentals of Subsea and Marine Systems

- Introduction to subsea and marine environments.
- Key components of subsea production systems (SPS).
- Marine infrastructure (FPSOs, floating platforms, vessels).
- Design considerations (hydrodynamics, corrosion, fatigue, etc.).
- Materials selection and environmental compatibility.

Day 2: Subsea Equipment Design & Installation

- Wellhead systems, Xmas trees, manifolds.
- Flowlines, risers, umbilicals – types and configurations.
- Design and layout of subsea fields.
- Pipeline installation methods (S-lay, J-lay, reel-lay).
- Subsea intervention systems and ROV/AUV integration.

Day 3: Operations and Lifecycle Management

- Subsea control systems and communication protocols.
- Operational challenges in deepwater environments.
- Flow assurance: wax, hydrates, and asphaltenes.
- Operational readiness and commissioning.
- Health, Safety, and Environmental (HSE) considerations.

Day 4: Maintenance, Integrity & Inspection

- Asset integrity management.
- Inspection techniques: ROV-based, acoustic, and visual.
- Non-destructive testing (NDT) in subsea conditions.
- Condition monitoring and predictive maintenance.
- Cathodic protection systems for marine equipment.

Day 5: Case Studies, Risk Management & Workshop

- Case studies of failure incidents and lessons learned.
- Risk analysis and mitigation strategies.
- Compliance with ISO, API, DNV, and IMCA standards.
- Workshop: Design review and operational scenario planning.
- Group discussion and Q&A.

Training Methodology:

Interactive presentations.
Real-world case studies and problem-solving.
Videos and animations for equipment visualization.
Hands-on exercises and workshops.
Group discussions and knowledge-sharing.

Program Agenda:

(1st Day) Agenda

8.30	9.00	Opening Remarks (30 Min.).
9.00	11.30	DISCUSS COURSE OBJECTIVES: • Fundamentals of Subsea and Marine Systems. • Subsea Equipment Design & Installation. • Operations and Lifecycle Management. • Maintenance, Integrity & Inspection. • Case Studies, Risk Management & Workshop.
11.30	12.00	Coffee Break
12.00	14.00	Fundamentals of Subsea and Marine Systems: • Introduction to subsea and marine environments. • Key components of subsea production systems (SPS). • Marine infrastructure (FPSOs, floating platforms, vessels). • Design considerations (hydrodynamics, corrosion, fatigue, etc.). • Materials selection and environmental compatibility.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(2nd Day) Agenda

9.00	11.30	Subsea Equipment Design & Installation: • Wellhead systems, Xmas trees, manifolds. • Flowlines, risers, umbilicals – types and configurations. • Design and layout of subsea fields.
11.30	12.00	Coffee Break
12.00	14.00	Subsea Equipment Design & Installation: • Pipeline installation methods (S-lay, J-lay, reel-lay). • Subsea intervention systems and ROV/AUV integration.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(3rd Day) Agenda

9.00	11.30	Operations and Lifecycle Management: • Subsea control systems and communication protocols. • Operational challenges in deepwater environments. • Flow assurance: wax, hydrates, and asphaltenes.
11.30	12.00	Coffee Break
12.00	14.00	Operations and Lifecycle Management: • Operational readiness and commissioning. • Health, Safety, and Environmental (HSE) considerations.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(4th Day) Agenda

9.00	11.30	Maintenance, Integrity & Inspection: • Asset integrity management. • Inspection techniques: ROV-based, acoustic, and visual. • Non-destructive testing (NDT) in subsea conditions.
11.30	12.00	Coffee Break
12.00	14.00	Maintenance, Integrity & Inspection: • Condition monitoring and predictive maintenance. • Cathodic protection systems for marine equipment.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(5th Day) Agenda

9.00	11.30	Case Studies, Risk Management & Workshop: • Case studies of failure incidents and lessons learned. • Risk analysis and mitigation strategies. • Compliance with ISO, API, DNV, and IMCA standards.
11.30	12.00	Coffee Break
12.00	14.00	Case Studies, Risk Management & Workshop: • Workshop: Design review and operational scenario planning. • Group discussion and Q&A.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch