TECHNICAL
EDUCATION
ACADEMY

School of Engineering

COURSE PROGRAMME

000178

OFFS001 - Fundamentals of Offshore and Deepwater Systems

Low oil prices, cost cutting, staff reductions, increasing stakeholder expectations, and regulatory pressure - all are common threads weaving through today's dynamic global oil and gas industry.



Learn from the Best in the Business!

Course overview

Foundation level

Why take this course

Low oil prices, cost cutting, staff reductions, increasing stakeholder expectations, and regulatory pressure - all are common threads weaving through today's dynamic global oil and gas industry. To remain competitive, companies are taking a hard look at how they can better manage their operations.

Technology solutions enable efficiencies and change the game for both onshore and offshore producers. One of the challenges operators face is leveraging value from the operational data and experience they already have collected - albeit spread inconsistently across multiple business functions. They then need to fill the gaps in their understanding about the real state of operations. Organizations are often constrained by the tools and practices they can use to extract practical insight and decision support. Lacking the means to translate data into useful information limits the ability for organizations to use risk as an indicator to support improved, proactive operational decision-making.

Modern offshore production systems are highly sophisticated and use advanced technologies, well beyond even those envisaged by anyone in the early days of subsea development. This use of advanced technologies and the mass of strategic knowledge that has been built up has accelerated the development of deepwater fields around the world.

This five-days course has been specially developed to provide a broad but in-depth overview of the sector and shares useful insights into the state of the art in offshore engineering & technology. It will cover aspects of how offshore fields are developed, and how offshore systems are designed, installed, operated and decommissio

Who it is for and how it helps

Individuals with a basic awareness of or experience in offshore engineering and operations. Technical staff, project engineers, engineering discipline leads, engineering specialists and operating staff find this course accelerates their capability to contribute on offshore field development planning, design and construction projects and field operations.

What you will learn

- Identify the key facilities parameters that must be evaluated for field development
- Describe the types and capabilities of offshore well construction, pipeline, riser and production (surface and subsea) facilities needed for all water depths, from shallow to ultra deepwater
- Recognize the best applications and characteristics of each type of offshore fixed and floating structure
- Account for the effects of the ocean environment on facilities design, construction and operations
- Identify the impact space, loads and forces have on the structural design and global performance of offshore structures and how they influence their cost

Course overview — continued

- Describe the impact topside facilities (drilling, well servicing, processing and utilities) affect the structural design and how the topside design process is done
- Recognize and manage key design and operational interfaces between the major components of offshore facilities systems
- Understand and apply the key design, construction and installation issues associated with fixed and floating platforms to your work

Curriculum

Modules 01–03

01 Offshore systems overview and field architecture selection

- Typical field architectures: loop, single line, hybrid loop, separation...
- Surface production and storage technologies: FPSO, TLP etc.
- Subsea production systems: XT, jumper, manifold, production lines, risers, umbilicals.
- Umbilical networks: electrical, hydraulic, chemicals etc.
- Flowlines, risers and export systems.
- Examples of offshore developments.
- Pipeline and riser concept.
- Materials (steel, corrosion resistant alloys, anti-corrosion coatings, thermal insulation...).
- Pipeline installation.
- New technologies under development (subsea separation, subsea processing, subsea pumping, subsea compression, heating, surface support etc.)

02 Subsea construction & intervention

- Construction plans and execution
- Construction and multi-purpose support vessels.
- Surface and subsea positioning.
- ROV/diving operations.
- Description of main subsea interventions methods.
- Project management lessons learned
- Life-cycle and decommissioning considerations

03 Inspection, maintenance & repair

- Anomalies: physical/structural integrity issues; functional non-conformities integrity issues.
- External and internal inspection, monitoring.
- Maintenance: subsea interventions; operational pigging.
- Clamps and spool repairs.
- Constraints specific to deep water offshore production.
- Environmental constraints (temperature, sea, seabed, access etc.)
- Flow assurance issues: pressure, temperature, hydrates.

Curriculum

Modules 04

04 Operation from production platforms

- General description (subsea control devices, valve actuation process etc.)
- Description of typical operations.
- Description of specific operations.

Joining the programme

Contact the Academy and quote course code 000178 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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