

PetroSkills®

2017 Offshore & Subsea Training Guide



OGCI®

John M. Campbell

RDC

Course Progression Map



Our Offshore & Subsea Team provides technical training and consulting for the complete life-cycle of offshore oil and gas systems; from exploration and development to decommissioning. The curriculum includes courses that provide attendees the knowledge to understand and participate in evaluating the major offshore development alternatives: fixed structures, floating systems and subsea systems. Other key elements stressed in all offshore courses include life-cycle costs, constructability, operability and interface management.

Offshore & Subsea instructors have extensive real world experience managing offshore development projects, well construction and servicing, asset management and producing operations. Their broad knowledge blends the unique technical and operational issues of offshore into an integrated approach to enhance understanding of the full scope of offshore facilities.

The following instructors have been selected and approved by the PetroSkills Curriculum Network:

- MR. DON BEESLEY
- MR. KRIS DIGRE
- DR. ANDREA MANGIACACCHI
- DR. PHIL NOTZ
- DR. GEORGE RODENBUSCH
- DR. KENT SAUGIER

	Oil and Gas Processing			Process Safety	Instrumentation, Controls & Electrical		Offshore & Subsea
	Gas	Oil / Water	General Processing		Electrical	Instrumentation & Controls	
Specialized			CO ₂ Surface Facilities – PF81				
Intermediate	Gas Treating and Sulfur Recovery – G6 Practical Computer Simulation Applications in Gas Processing – G5		Onshore Gas Gathering Systems: Design & Operation – PF45	Separation Equipment - Selection & Sizing – PF42	Relief and Flare Systems – PF44	Practical PID Control and Loop Tuning – IC74 Flow and Level Custody Measurement – IC73 Valve and Actuator Technologies – IC72 PLC and SCADA Technologies – IC71	Flow Assurance for Offshore Production – FAOP p.4
Foundation		Fundamental and Practical Aspects of Produced Water Treating – PF23 Applied Water Technology in Oil and Gas Production – PF21		Process Safety Engineering – PS4 Risk Based Process Safety Management – HS45 Fundamentals of Process Safety – PS2	Electrical Engineering Fundamentals for Facilities Engineers – E3 Instrumentation, Controls and Electrical Systems for Facilities Engineers – ICE21	Instrumentation and Controls Fundamentals for Facilities Engineers – IC3	Fundamentals of Offshore Systems: Design and Construction – OS4 p.4 Offshore and Cons... Corrosion Management Processing Operati...
Gas Conditioning and Processing - LNG Emphasis – G4LNG							
Gas Conditioning and Processing – G4 (Virtual/Blended option for first week coming s							
Oil Production and Processing Facilities – PF4							
Basic	LNG Short Course: Technology and the LNG Chain – G29 Overview of Gas Processing – G2		Introduction to Oil and Gas Production Facilities – PF2	Concept Selection and Specification of Production Facilities in Field Development Projects – PF3	Process Safety Engineering Principles – PSE Virtual/Blended Course		Overview of Subsea Systems – SS2 p.4 Overview of Offshore Systems – OS21 p.4

Course Progression Map

Pipeline Engineering	Mechanical Engineering			Operations & Maintenance		Project Mgmt.	Procurement/ Supply Chain Management
	Non-Rotating	Rotating	Reliability	O&M Management	Operator Training		
		Compressor Systems - Mechanical Design and Specification - ME46	Turbomachinery Monitoring and Problem Analysis - ME62			Advanced Project Management II - FPM63 Advanced Project Management - FPM62	
	Mechanical Specification of Pressure Vessels and Heat Exchangers - ME43 Piping Systems - Mechanical Design and Specification - ME41	Fundamentals of Pump and Compressor Systems - ME44	Risk Based Inspection - REL61 Process Plant Reliability and Maintenance Strategies - REL5	Turnaround, Shutdown, and Outage Management - TSOM		Managing Brownfield Projects - FPM42 Project Management for Engineering and Construction - FPM22 Project Cost Scheduling - PCS Petroleum Project Management: Principles and Practices - PPM	Cost/Price Analysis and Total Cost Concepts in Supply Management - SC64 Supplier Relationship Management - SC63 Strategic Procurement and Supply Management in the Oil and Gas Industry - SC62 Inside Procurement in Oil & Gas - SC61
Terminals and Storage Facilities - PL44 Onshore Pipeline Facilities: Design, Construction and Operations - PL42 Pipeline Design Construction - PL43 Management in Production/ Operations - PF22					Crude Oil Pipeline Operations - OT50		Effective Materials Management - SC42
				Maintenance Planning and Work Control - OM41	LNG Facilities for Operations & Maintenance - OT43	Introduction to Project Management - IPM	Contracts and Tenders Fundamentals - SC41
Pipeline Systems Overview - PL22				Applied Maintenance Management - OM21	Oil & Gas Processing Facilities for Operations & Maintenance - OT1		

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Overview of Offshore Systems – OS21

BASIC 5-DAY

This five-day course will accelerate the learning and productivity of individuals with little to no experience working in the offshore oil and gas industry. The course provides an overview of field development concepts and explains how offshore structures and facilities function as integrated systems. The content includes the full range of water depths from shallow water to ultra-deepwater. All major components required for offshore developments such as fixed and floating platforms, drilling and workover rigs, pipelines, risers, process and utilities and construction equipment are discussed. The importance of life-cycle considerations during development planning is emphasized. Individual and group exercises, including a case study, are used throughout the course. The course instructors are experienced offshore managers.

DESIGNED FOR

Technical staff, business professionals, technicians, analysts and other non-technical staff who are involved but have limited experience, or will be involved, with offshore oil and gas facilities. The course provides a basic understanding of offshore systems in all water depths, from shallow to ultra-deepwater, including design, construction, and operations.

YOU WILL LEARN HOW TO

- Identify the key steps in the development of offshore fields from discovery through decommissioning
- Understand the elements of field architecture to define a workable field development
- Recognize key stakeholder issues
- Recognize offshore production facilities and structures, fixed and floating.
- Understand the impact of the ocean environment on facilities design and operations
- Identify major design, construction, and operational issues and interfaces of offshore systems
- Recognize important forces on offshore structures and their influence on design and cost
- Understand strategic options for well drilling (construction) and servicing
- Appreciate the basic processes and equipment involved in the topsides design and operation
- Understand fluid transportation options and equipment
- Recognize the marine equipment used in the construction of offshore facilities
- Understand basic issues in life-cycle and decommissioning decisions
- Appreciate advances in offshore technology

COURSE CONTENT

Field development concepts, fixed and floating • Subsea systems • Wells, construction and servicing • Topsides facilities; processing; utilities • Oil and gas transportation systems, design and installation • Production operations • Offshore construction; equipment • Fabrication; transportation; integration; installation project management • Life-cycle considerations, including decommissioning

2017 Schedule and Tuition (USD)

HOUSTON, US	24-28 JUL	\$4150
LONDON, UK	19-23 JUN	\$4780+VAT

Overview of Subsea Systems – SS2

BASIC 5-DAY

An overview of subsea components and how they are integrated into field architecture is provided during this five-day course. Individuals will develop a basic understanding of the various subsea components used in all water depths, from relatively shallow to ultra-deepwater. The participants will all learn how the components are integrated into subsea field developments, which will accelerate learning and productivity. Installation and flow assurance are emphasized as key drivers in subsea design. The course emphasizes a systems approach to design. Individual and group exercises are used throughout the course, including a case study to develop field architecture recommendations, basic component selection, and high level project execution plans for a subsea development. Course instructors are experienced offshore managers.

DESIGNED FOR

Technical staff who are beginning or transitioning into the design, construction, and operation of subsea systems. Non-technical staff working with a subsea development team will benefit by developing an awareness of subsea systems.

YOU WILL LEARN HOW TO

- Recognize the integrated nature of field architecture, system design, and component selection
- Identify appropriate applications for subsea systems
- Identify the main subsea components, their functions, strengths, weaknesses, and interfaces from the well to the production facility
- Understand key design, construction, and installation issues
- Describe basic operating and maintenance considerations
- Understand the key steps, from drilling through startup, for the design, fabrication, testing, installation, and operation
- Understand the importance of an integrated approach to design, flow assurance, installation, and life-cycle considerations

COURSE CONTENT

Applications for subsea systems • Flow assurance considerations in system design and configuration • Field architecture considerations • Subsea component descriptions and functions • Fabrication, testing, installation, commissioning, and operational issues • Production, maintenance, and repair considerations

2017 Schedule and Tuition (USD)

COVINGTON, US	2-6 OCT	\$4110
HOUSTON, US	3-7 APR	\$4150
LONDON, UK	11-15 DEC	\$4780+VAT
SINGAPORE, SGP	14-18 AUG	\$5460

Fundamentals of Offshore Systems Design and Construction – OS4

FOUNDATION 10-DAY

This 10-day course provides a fundamental understanding of the technology and work processes used for the design and construction of all types of offshore systems, including consideration of asset development, surveillance, and management. The content includes the full range of water depths from shallow water to ultra-deepwater and will also address life-cycle considerations in all phases of offshore field development and operation. All major components required for offshore developments, such as fixed and floating platforms, drilling rigs, workover equipment, pipelines, risers, process, and utilities and construction equipment are discussed. Emphasis is placed on the multi-discipline team approach needed to manage the myriad interfaces of offshore facility design, construction, and operations. Individual and group exercises are used throughout the course. A case study for an offshore project development is included.

DESIGNED FOR

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.

YOU WILL LEARN HOW TO

- Identify the key facilities parameters that must be evaluated for field development
- 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
- 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

COURSE CONTENT

Offshore systems overview and field architecture selection • Well construction and servicing equipment and operation • Flow assurance • Topsides facilities • Oil and gas transportation facilities • Riser systems • Subsea systems • Production operations • Infrastructure impact on design and operations • Effects of the ocean environment • Introduction to naval architecture • Structural design processes and tools • Construction plans and execution • Project management lessons learned • Life-cycle and decommissioning considerations

2017 Schedule and Tuition (USD)

HOUSTON, US	14-25 AUG	\$7615
LONDON, UK	11-22 SEP	\$8270+VAT
SINGAPORE, SGP	30 OCT-10 NOV	\$7960

Flow Assurance for Offshore Production – FAOP

INTERMEDIATE 5-DAY

Flow assurance is a critical component in the design and operation of offshore production facilities. This is particularly true as the industry goes to deeper water, longer tiebacks, deeper wells, and higher temperature and pressure reservoirs. Although gas hydrate issues dominate the thermohydraulic design, waxes, asphaltenes, emulsions, scale, corrosion, erosion, solids transport, slugging, and operability are all important issues which require considerable effort. The participant will be presented with sufficient theory/correlation information to be able to understand the basis for the applications. This intensive five-day course has considerable time devoted to application and design exercises to ensure the practical applications are learned.

DESIGNED FOR

Engineers, operators, and technical managers who are responsible for offshore completions, production, and development; technical staff needing a foundation in principals, challenges, and solutions for offshore flow assurance. The course is also appropriate for persons involved in produced fluids flow in onshore production operations.

YOU WILL LEARN HOW TO

- Identify the components of a complete flow assurance study and understand how they relate to the production system design and operation
- Interpret and use sampling and laboratory testing results of reservoir fluids relative to flow assurance
- Understand the basic properties of reservoir fluids and how they are modeled for the production flowline system
- Understand the thermohydraulic modeling of steady state and transient multiphase flow in offshore production systems
- Evaluate and compare mitigation and remediation techniques for: gas hydrates, paraffin (waxes), asphaltenes, emulsions, scale, corrosion, erosion and solids transport, and slugging
- Understand the elements of an operability report for subsea production facilities, flowlines, and export flowlines

COURSE CONTENT

Overview of flow assurance • PVT analysis and fluid properties • Steady state and transient multiphase flow modeling • Hydrate, paraffin, and asphaltene control • Basics of scale, corrosion, erosion, and sand control • Fluid property and phase behavior modeling • Equations of state • Fugacity and equilibrium • Viscosities of oils • Thermal modeling • Multiphase pressure boosting • Slugging: hydrodynamic, terrain induced, and ramp up • Commissioning, start-up, and shutdown operations

2017 Schedule and Tuition (USD)

ABERDEEN, UK	7-11 AUG	\$4770+VAT
KUALA LUMPUR, MYS	4-8 DEC	\$4935
LONDON, UK	15-19 MAY	\$4770+VAT

*plus computer charge



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- Process Facilities
- Pipeline Engineering
- Instrumentation, Controls & Electrical
- Mechanical Engineering
- Reliability Engineering
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- Project Management

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