Objectives

▸ This five-day Course has been designed to be suitable for contractors, engineers, operators and those new to the offshore industry, those transferring from other disciplines within the industry and those who have worked in subsea previously but would benefit from a refresher course and exposure to the latest technology.

▸ Whilst most of the course will be presented in a ‘classroom’ environment, the sessions will be interactive, with the opportunity to ask questions and discuss what has been learnt. In particular, hands-on and visual components have been included wherever possible to enable delegates to view software models and products designed for subsea service.
**Day One 11 Dec. 2016**

9:00 Subsea Exploration, D&C
Introduce the basic concepts of exploration in the offshore/subsea industry, types of rigs used to perform the drilling, most common drilling equipment used on subsea developments, how wells are completed and typical well designs for subsea wells.

10:30 Coffee Break

10:45 am Field Development concepts
Introduce the various aspects affecting the technical decision making for how to develop a field, fixed platform, floating platform, FPSO, SPAR, the various concepts used to develop remote offshore subsea fields and the difference between each concept, examples on typical applications used in Egypt are to be showcased.

12:15 Lunch

13:15 Subsea WH, XTs (IWOCS)
"Introduce the different types of subsea wellheads and Xmas Trees used in well development, different pressure ratings, materials classes and temperature classes, main function of a wellhead and a Xmas Tree and their associated tooling. Introduce the operational requirements for an IWOCS system off drilling rigs during the well completion phase and preparation for well commissioning."

14:45 Coffee Break

15:00 ROV Systems & Tools
Introduce the different types of Remotely Operated Vehicles, depth rating, work classes, types of ROV bucket interfaces on Subsea Production Systems (Xmas Trees, Manifolds, Jumpers etc), also introducing the different types of ROV tools used for the various subsea operations from installation, commissioning to operations.

**Day Two 12 Dec. 2016**

9:00 Subsea Controls - Topsides
Introduce the different components of the topsides aspect of the subsea controls system, MCS, HPUs, EPUs, UPS, cause and effect charts, shutdown philosophies development, software development aspect, junction boxes, topside umbilical terminations.

10:30 Coffee Break

10:45 Subsea Controls - Subsea
Introduce the different components of the subsea aspect of the subsea controls system, subsea umbilicals, subsea distribution units, subsea control modules, manifold control modules, subsea accumulation units, modules moderns, interfaces with downhole gauges, interfaces with multiphase flowmeters

12:15 Lunch

13:15 Subsea Structures (Manifolds)
Introduce the different types of manifold structures and their uses, production manifolds, injection manifolds, pipeline end terminations, pipeline end manifolds. Introduce the design methodology used to develop manifold concepts and description of the process of procurement from various vendors and the fabrication process, quality aspects, factory acceptance and site integration testing.

14:45 Coffee Break

15:00 Subsea Structures (Jumpers and Connection Systems)
Introduce the different types of jumpers (M, Z etc) and various types of connection systems (collet, clamp etc) and their selection process. Jumper design considerations as well as jumper metrology performed offshore, jumper fabrication and testing.

**Day Three 13 Dec. 2016**

9:00 Subsea Pipelines
Introduce the basic concepts of pipeline design and calculations, pipeline materials, welding requirements, tolerances (erosion, corrosion etc), insulation types, considerations for subsea pipelines design and specifications.

10:30 Coffee Break

10:45 am Subsea Pipelines Installation
Introduce the different types of construction vessels used for pipeline laying and the requirements for pipeline installation.

12:15 Lunch

13:15 Subsea Equipment Installation1
Introduce the different classes of construction vessels, various types of cranes used during offshore operations. Requirements and process of installation of subsea Xmas Trees, subsea Manifolds, Subsea umbilicals and jumpers. Showcase video animation examples of typical subsea equipment installation.

14:45 Coffee Break

15:00 Subsea Equipment Installation2

**Day Four 14 Dec. 2016**

9:00 Subsea Operations - Facilities
Introduce the different stages of operations of an oil and gas production facility, describe the components of a production facility, slug catchers, heat exchangers, separators, utilities, process engineering, control room tasks, onshore control of subsea field assets, planned shutdowns, maintenance requirements, metering, introduction to the national grid and safety aspects in facilities.

10:30 Coffee Break

10:45 Subsea Operations - Start Up & Life of Field
“Introduce the different requirements of the start up of a subsea field, production ramp up, production profiling follow up, production plateau. Introduce the different potential remedies for wells production profiles drop, inspection programs and intervention on wells and other life of field topics.”

12:15 Lunch

13:15 Case Study 1
A case study describing a real life project implemented using the main technical concepts discussed during the course, the challenges faced at the different stages of the project lifecycle and how they were mitigated.

14:45 Coffee Break

15:00 Case Study 2

**Day Five 15 Dec. 2016**

Site visit - Petrojet:
A full day visit to one of the most important sites for the offshore business in Egypt, where subsea manifolds and jumpers are manufactured at the Petrojet onshore site in Maadeya, Alexandria.

Petrojet onshore site Visit Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>07:00</td>
<td>Move (Cairo train stn.)</td>
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<tr>
<td>10:30</td>
<td>Arrive (Petrojet)</td>
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<td>10:30 - 14:00</td>
<td>Tour</td>
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<td>14:00 - 15:00</td>
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<td>15:00 - 16:00</td>
<td>Lunch</td>
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<td>17:15</td>
<td>Return (Train)</td>
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<tr>
<td>20:30</td>
<td>Arrive (Cairo)</td>
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