COURSE SCHEDULE

WEDNESDAY 4TH JUNE

08.15 Registration

08.40 **Welcome/Introduction**

08.45 **General Intro to Subsea Production Systems**
Liam Salter, Woodside & Bukkie Orugun, Technip FMC
Components of subsea systems, the 'building blocks''
The purpose of each element & how they fit into the overall system.

09.45 **Operating Strategies/Practices**
Alen Ninan, Wood
Overall system operation subsea tie-backs in oil/gas condensate developments.
Differences in System operational control schemes (eg. FLNG vs Conventional LNG vs. Domestic Gas).
Typical pressure, temperature & compositional operating envelope considerations.
Flow rate control and liquid management.
Hydrate & Wax mitigation and remediation strategies
Planned & unplanned transient operations (eg. field start-ups/shut downs)

11.00 Morning Tea

11.15 **Operating Subsea Systems**
Colin Forde, Woodside Energy
A short overview of operating a subsea system, from well start up through the operating phase to well shutdown.
What information is readily available, how to interpret it, to ensure a safe, smooth and efficient operation.

12.00 **Vulnerabilities - What could go wrong?**
Peter Brownlie, Worley & Peter Baker, SEA Global
Explanations of the vulnerability of subsea hardware to the following:
Hydrates, waxes & scale, causes & remedies
Control Fluid Cleanliness.
Incompatible Fluids
Insulation Resistance.
Gas Ingress & condensing water
Technology Obsolescence.
Reliability, redundancy & flexibility.
Dragged & dropped objects - Fishing activity.
Corrosion/erosion.
Marine environmental influences - temperature, internal water motions & marine growth.

13.00 Lunch Break

13.30 **Managing Subsea Assets**
Harry Mackay, Woodside Energy
This session discusses the management of subsea operations by describing the following: Operations in the Asset Lifecycle
Subsea Operators Goals & Key Elements to these Achieve Goals. This includes examples of existing subsea infrastructure, operations and maintenance roles & team structures including indicative costs.

14.30 **Inspection, Repair & Maintenance**
Norman Mackay, DOF Subsea
The need for IRM and how it is carried out, exploring: Diver intervention; ROV & Survey Capabilities; IRM Vessels; Inspection and survey systems; AUV Systems; Integrity management: Planning and Timing.
Procedure development; Case study examples

15.30 Afternoon Tea

15.45 **Advanced Systems**
Luca Letizia, OneSubsea
Subsea Separation
Subsea Compression
Direct Seawater injection

16.45 **Course Conclusion**

** SUT reserve the right to amend the course programme as required.

Images courtesy of Technip FMC.