

2 DAYS PRIMER COURSE IN SUBSEA PRODUCTION SYSTEMS

DAY 1

08.30 Course Registration

09.00 COURSE WELCOME

09.15 L1 INTRODUCTION

- Background and General Trends in Offshore Production
- Review of Fields developed with Subsea Production Systems
- Influence of Pressure, Temperature and Reservoir Chemistry on Production Systems
- Deepwater Requirements
- Examples of Subsea Components

10.15 Break

10.30 L2 FLOW ASSURANCE

- Flow Assurance Problems
- Chemical Injection
- Energy Management
- Hydraulic Flow Simulations
- Subsea Separation

11.15 L3 DRILLING AND WELLHEADS

- Overview of Geology and Reservoir Formations
- Seismic Data Collection and Analysis
- Drilling Rigs and Rig Equipment
- Drilling Subsea Wells
- Deepwater Drilling
- Horizontal and Extended Reach Drilling
- Wellheads – Design and Function

12.00 Lunch

13.00 L4 XMAS TREES

- Xmas Tree Functions
- Standard Dual Bore and Horizontal Trees
- * Running and Installing
- Interfaces with Controls, Chokes etc
- Completions/Workover Systems

14.15 Break

14.30 L5 MANIFOLDS AND WELL CLUSTERS

- Functional requirements
- Predrilling Templates
- Subsea production templates with manifolding functions
- Well clusters and manifolds
- Piping, Valves, Chokes, Instrumentation and Control interfaces
- Installation, operation and maintenance
- Deep water modular systems

15.30 L6 FIELD LAYOUT REQUIREMENTS

- Field Layout Requirements
- Subsea Wells
- * Prevailing Weather
- Vessel Mooring Patterns
- Drilling Operations and Vessel Movements in the Field
- Workovers

16.30 Q & As Followed by close of day

DAY 2

09.00 L7 FLOWLINES AND PIPELINES

- * Flowline / Pipeline Design
- * Multiphase Flow
- * Route Selection
- * Pipe Laying Techniques

10.30 Break

10.45 L8 RISERS

- Rigid Platform Risers
- Flexible Dynamic Risers
- Deepwater requirements
- Steel Catenary Risers
- Hybrid Risers and Riser Tower

12.00 Lunch

13.00 L9 SUBSEA CONTROL SYSTEMS AND CHEMICAL INJECTION

- Systems Configuration
- Electro-Hydraulic MUX Systems
- Systems Components
- Chemical Injection
- * Examples

13.45 L10 SYSTEMS RELIABILITY

- Concepts
- Reliability Engineering
- RAM Analysis
- Reliability Maturity Index
- Level of Risk
- Risk Analysis and Assessment
- Subsea Examples of Failure

14.30 Break

14.45 L11 NEW TECHNOLOGY – SUBSEA PROCESSING

- Multiphase Pumping
- Subsea Separation
- * Water Re-injection
- Technology Examples

16.30 Q & As Followed by close of day

