# Flow Assurance Course PFA-001a Outline

## Design Considerations

### Hydraulic Assessment
- Principles of Multiphase flow in pipes
- Pressure drop calculation/Line sizing
- Integrated System Hydraulics – Well, flowline & risers

### Thermal Assessment
- Principles of Heat transfer
- Thermal performance specification
- Insulation types/application & Thermal Modelling

## Fluids & Production Chemistry

### Fluids Handling
- Lab measurements
- Fluid Characterisation & property prediction

### Solids Handling
- Hydrate prediction and management
- Wax prediction and management
- Produced water analysis & Scale Management
- Sand erosion calculations

## Operational Issues

### Slugging & Transient Operations
- Types of slugging, slug prediction & mitigation
- Production Shutdown/Cooldown
- Pipeline Depressurisation
- Production Start-up/Restart
- Pigging operations

## Design & Operations Interfaces

### Integrated into Design & Operations
- Input to Mechanical Design & Materials Selection
- Input to Process Facilities Design
- Input to Subsea Equipment Design and Specifications
- Input to Operations Support
- Input to Production Enhancement/Optimisation

Course case studies and exercises include gas condensate systems, deepwater developments, subsea tie-backs, pipeline network systems, water and chemical injection systems and more

## Who Should Attend:
- Subsea Project Managers
- Development Engineers
- Process/Facilities Engineers of subsea fields
- Field Development Personnel
- Introduction/overview for Flow assurance engineers

Mixture of lectures, exercises, case studies and software demonstrations to help the candidates understand flow assurance challenges and considerations that must be made at the concept and design stage of a development and how to generate philosophies to ensure an operable asset.

## Our Instructors have world-class experience built on excellent academic backgrounds in the principles of flow assurance

### Lead Instructors:
- Dr Bishop Falope, M.Sc., Ph.D. (London, UK)
- Dr Isaac Ogazi, M.Sc., Ph.D. (Cranfield, UK)

### Supporting Instructors:
- Fatima Shettima-Arfo, M.Sc. (London, UK)
- Terry Ebinum, M.Sc. (Aberdeen, UK)

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