



## Flow Assurance

### ABOUT THE COURSE

Flow assurance is considered as the ability to produce fluids economically, from the reservoir to a production facility, over the life of a field and in any environment. Flow assurance topics target all important issues enabling smooth flow of oil and gas from reservoir to the topside facilities.

This course establishes a foundation of knowledge regarding asphaltene and wax deposition, hydrates formation, formation of inorganic scales, emulsions and corrosion.

Flow assurance depends on a variety of factors, including reservoir fluid properties, p-T conditions, fluid flow pattern, etc. Understanding the fundamentals of these elements is the key to designing a management strategy.

Flow assurance strategy requires integrated prevention/removal strategy and you will learn how to recognize the problem and how to design a management strategy.

Emphasis will be placed on understanding type of problems and you will be able to apply the knowledge you gained to propose solutions.

All chapters include case studies and examples.

### DESIGNED FOR

This training course is designed for engineers, operators and technical managers who are responsible for completions, production and development; technical staff needing a foundation in principals, challenges and solutions for flow assurance.

### YOU WILL LEARN

- Identify the components of a complete flow assurance study and understand how they relate to the production system design and operation
- Interpret and use laboratory testing results of fluids relative to flow assurance
- How to participate in creation of an integrated monitoring and control program to select and to apply appropriate monitoring and control techniques
- Evaluate and compare mitigation and remediation techniques for: gas hydrates, paraffin (waxes), asphaltenes, emulsions, scale, corrosion

### COURSE OUTLINE

- Wax and asphaltenes
  - Chemistry and basics of organics, i.e. wax and asphaltene precipitation and deposition
  - How to predict organic deposition
  - Factors affecting deposition and how to handle deposition
- Case studies

- Gas hydrates
  - Definition, formation and types
  - Formation prediction
  - Prevention
  - Case studies
- Emulsions
  - Definition and formation conditions
  - Production aspects of emulsion presence
  - Methods of emulsion breaking
  - Guidelines of emulsion treatment and demulsifiers selection and injection rate optimization
  - Case studies
- Corrosion
  - Definition and types
  - How to estimate corrosion
  - Corrosion control methods and monitoring techniques
  - Case studies
- Scale
  - What common scales we are dealing with and how do they form
  - How to estimate water scaling potential
  - Scaling control methods and monitoring techniques
  - Case studies