

DAY 1

Well Construction & Completion Components, Well Integrity Management System and Basic Metallurgy

Part I: Review of Completion Components and Well Assemblies

- Downhole elements
- Casing components
- Completion accessories
- Wellhead and X-mass tree
- API temperature class
- API material class
- Product Specification Level (PSL)

Part II: An Introduction to Well Integrity Management System (WIMS)

- What is well integrity?
- Well Integrity Management System (WIMS)
- Well integrity failures
- Well barriers

Part III: Basic Metallurgy and Mechanical Properties of Steels

- Engineering materials
- International standards
- Mechanical properties
- Downhole steels and alloys

DAY 2

Downhole Corrosion

Part I: Fundamentals of Corrosion & Material Degradation

- Corrosion basics
- Cost of corrosion
- Typical corrosion types

Part II: Downhole Corrosion Mechanisms and Failure Case Studies

- Downhole corrosion mechanisms
- Corrosion prediction
- Standards and tests
- Corrosion failures case studies

DAY 3

Casing and Tubing Standards, Grades & Manufacturing

- API Standards
- API 5CT Grades
- API 5CT/ISO 11960
- API 5CRA/ISO 13680
- Manufacturing process
- Basics of API & premium connections
- Connection Assessment Levels (CAL)

DAY 4

Material Selection Strategy

- The main criteria for material selection
- Factors affecting materials selection
- Material selection required information
- Material selection examples
- Non-metallic material functional requirements
- Thermoplastic materials
- Elastomers in downhole completion

DAY 5

Material Selection Case Studies and Software Simulation

Part I: Case Studies

- Casing string material selection
- Production string & completion equipment material selection
- Material class selection of wellhead and X-mas tree

Part II: Software Simulation

- Evaluation and determination of corrosion in steels using PREDICT®
- CRA material selection for corrosive oil and gas applications using SOCRATES®