Intelligent Well System: Design, Implementation, Analysis and Optimization

Course Price

£3250

Course Description

This course provides a comprehensive description of the basics and fundamentals of Intelligent Well Completion needed to successfully identify, plan and execute intelligent well and intelligent field projects. It covers the pre-deployment, deployment and post-deployment issues in intelligent well technology. Presentation material is combined with practical exercises to reinforce the material learned.

Course Objectives

Who Should Attend

The course is recommended for those responsible for and engaged in the design, implementation and day to day use of intelligent well technology. This includes but not limited to reservoir engineers, production engineers, completion and drilling engineers and IT professionals.

Course Content

Part I:

Introduction to Intelligent Well completions, identifying, screening, and justifying Intelligent Well projects

Objective:

Provide petroleum engineering foundation for Intelligent Well projects

Introduction to Smart Wells

• What is an intelligent well?

• Elements of an intelligent well
• Applications

• Business Drivers

**Petroleum Engineering Aspects of Intelligent Wells**

• Inflow, outflow and Intelligent Wells

• Nodal analysis with intelligent wells

• Completion flow capacity

• Flow control valve design

  o Deterministic approach

  o Probabilistic approach

• Artificial lift and intelligent wells

• Commingling Flow Estimation and Allocation

**Screening and Project Valuation with Intelligent Wells**

• Intelligent Well Screening

• Intelligent Well Technical Evaluation

  o Analytical Approach

  o Numerical Simulation Approach

  o IWC Simulation Example

• Reliability in Intelligent Well Model

• Passive versus Active Control – ICD or ICV

• Case Studies of IWC Applications

**Part 2:**

**Intelligent Well completion design and project management**

**Objective:**

Provide Intelligent Well completion fundamentals and training on the management of a Intelligent Well completion project.
Intelligent Well Completion Design

- Defining Completion Function Requirements
- Intelligent Well Completion Equipment
- Surface Control Systems
- Intelligent Well Completion with Sand Control
- IWC with Fiber Optic Systems, DTS, DAS, etc

Intelligent Well Project Management

- Introduction to Intelligent Well Project Management Process
- Project Management Processes
- Key Project Learning Points
- Intelligent Well Completion Value Assurance

Part 3:

Realizing the value from your Intelligent Well project

Objective:

Discuss the critical aspects of operating Intelligent Well projects to ensure successful value creation

Managing Your Intelligent Well/Intelligent Field

- Introduction to Intelligent Well Management
- Developing an operating philosophy for intelligent wells
- Data collection, validation and storage
  - Get It
  - Manipulate it
  - Use it
- IWC Data Management. Analysis and decision processes
  - Monitor: Data Access & Validation
  - Analyze
Well Test Validation Example

IWC Optimization Example

Visualization and Reporting

- Control and Optimization of Intelligent Well System

- Well & Field

- Real time and offline management of Intelligent Well System

Part 4:

Hands on Design and Implementation of Intelligent Well System

Objective:

Provide a class group exercise on the screening, design and implementation of intelligent well system. The class will be divided into groups. The candidates will be given data in which they will be asked to identify candidates, design a suitable intelligent well system using all the methods discussed in the training. They will then present their results to the rest of the class.

CPD Unit

Continuing Professional Development

35 HOURS CPD