Oil Exploration, Drilling, Well Completion & Production

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Introduction:

This course is designed for oil filed technologists, project managers, plant managers, plant supervisors, production supervisors, technical staff, operators and technicians and contractor personnel involved in the production of oil and natural gas. The greatest benefit arises from discussing the underlying principles of the various processes and the cause of the common operating problems.

You will also be able to see which processes are available to you to de-bottleneck or modify existing processes. The practical techniques and examples provide useful insights that are valuable in daily operations. Participants are encouraged to introduce any operating problems they have encountered for group discussion.

The training course covers the basics of oil and gas exploration and production process in intricate detail. A large range of topics like oil well drilling, well completion, wellhead Christmas tree, reservoir drives, artificial lift, stimulation, additional recovery, oil & gas separation, two-phase separation, three-phase separation, oil well testing, etc. have been covered in this course. The primary focus on graphics in the oil exploration and production process training program helps in very clearly understanding operating principles & procedures and gives a deep insight into the oil exploration and production process**.**

Objectives

By the end of this course delegates will be able to:

- Understand geological history and its connection to offshore drilling and production industry
- Explain the employment of the different methods of exploration for oil and gas
- Describe the different equipment and methods for well testing and logging
- Explain why and how cutting of formation core samples is undertaken
- Calculate pressures and pressure gradients in drilling and production wells
- Explain the construction of the different well control systems and equipment, and how they operate
- Employ methods and procedures for well control in a simulated environment
- Explain the most common drilling operations, and the tools and equipment involved
- Describe the most common floating and fixed installations and their main systems for operation
- Explain the construction of a well, including the use of casings, wellheads and cementing methods and techniques
- Explain the installations of hydraulic/pneumatic/electrical systems for control of drilling and well maintenance operations
- Explain methods for completing production wells
- Describe construction of a production well with production tubing wellhead and x-mas trees
- Explain the main principles of sub-sea completions and operations

Who should attend?

Drilling Engineers, Senior Drilling Engineers, Drilling Supervisors, Petroleum Engineers, Completion Engineers, Tool Pushers, Reservoir and Senior Reservoir Engineers, Geologists, Production and Completion Engineers, Foremen, Industry Personnel.

Course Outline:

Exploration

- Search for oil & gas
- Terms and nomenclature of geology used in oil industry
- Petroleum: How it is formed and trapped, geology of the suitable rocks for favorable deposition of hydrocarbons

Introduction to Drilling Technology

- Drilling methods
- Technical Definitions
- Rotary Drilling practices
- Well Construction and Design of Casing String
- Drilling fluids
- Well control Equipment
- Fishing and fishing Tools

- Offshore drilling Practices
- Safety on the rig

Well Completion and Testing

- Reservoir engineering aspects for well completion
- Phase behaviour
- Performance Evaluation

- Production inflow performance
- Types of well completion
- Corrosive high pressure completion
- Tubing less well completion
- Horizontal and multilayered completion
- Open hole completion
- Slotted liner completion
- Special completion
- Packer completion
- Perforation Techniques
- Over balanced and under balanced

- Well head equipment
- Down hole tools
- Classification of well production tests
- Transient pressure testing: well testing strategy
- Production testing tools

- Drill stem Test
- High pressure and high temperature testing
- Testing of sour wells
- Well activation and flow measurements

Artificial Lift

- Artificial lift
- Need for artificial lift
- Various modes of lifts
- Selection criterion and design of suitable lift
- Trouble shooting
- Optimization

Reservoir Pressure Maintenance through Water / Gas Injection

- Reservoir pressure maintenance
- Need for reservoir health management
- Types of water injection methods, peripheral and spot injection
- Frontier areas of EOR
- Compatibility of injection fluids
- Monitoring

Work-over Operations, Well Stimulation & Sand Control

- Work over rig components
- Introduction
- Rig components
- Draw works
- Hoisting System
- Rotary equipment
- Mud Pumps
- Prime over
- Work over Jobs

- Major Repair Jobs
- Casing Damage repair
- Fishing
- Well Stimulation
- Formation Damage

- Various stimulation techniques
- Gravel packing
- Activation

Production, Storage, processing & Transportation

- Production
- Design of GGS/GCS/ EPS
- Design of CTF
- Sour component handling
- Demulsification and desalting
- ETP- design
- Transportation

- Introduction to Offshore Technology especially Deep water
- Offshore Practices
- Introduction to offshore technology
- Deep water: frontier area of technology
- Case Studies
- Discussions