



## Basics of Exploration & Production Process

### Training Program

### Introduction:

This 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 the course. It describes the petroleum value chain from prospect identification, to project commissioning and to final abandonment. The candidates will leave this course with a firm understanding of the petroleum industry. Upon completion, participants will have the knowledge and tools necessary to understand the relationships and dependencies across the E&P industry.

### Who Should Attend?

Newly hired engineers and geoscientists, petroleum engineers, production operators, technicians and industry personnel

### Course Objectives:

**By the end of this course delegates will learn about:**

- Exploration/production overview
- Basic petroleum geology principles
- Basic petroleum geophysics principles
- Log interpretation basics
- Drilling basics
- Basic reservoir engineering
- Basic production engineering
- Basic facilities engineering
- Business principles governing E/P

## Course Outline:

### Oil & Gas Reservoirs

- Characteristics of rocks
- Origin of oil
- Reservoir Traps
- Reservoir Fluid Composition

### Drilling

- Exploration
- Rotary drilling rig
- Drill bits
- Hoisting, rotating and circulating system
- Conductor casing
- Drilling fluid / mud pump
- Surface casing
- Intermediate casing
- Logs and tests
- Production process casing

### Oil Well Completion

- Perforated completion
- Open hole completion
- Perforated liner completion
- Tubing and packers
- Tubingless completions
- Multiple completion
- Wire trapped screen completion

### **Wellhead**

- Casing head
- Tubing head
- Christmas tree

### **Reservoir Drives**

- Dissolved-gas drive
- Gas-cap drive
- Water drive
- Combination drive

### **Artificial Lift**

- Beam pumping
- Sub surface hydraulic pumping
- Electric submersible pumping
- Gas lift

### **Reservoir Stimulation**

- Fracturing
- Acidizing
- Chemical treatment

### **Additional Recovery**

- Water flooding
- Miscible processes
- Thermal processes

### **Separation & Treatment**

- Two-phase separation
- Three-phase separation
- Emulsion treatment
- Gas handling and treatment

### **Oil Well Testing**

- Potential tests
- Bottom hole pressure tests
- Productivity tests
- Bottom - Hole Temperature Determination
- Fluid Level Determination

### **Oil Lease Storage and Measurement**

- Oil storage
- Oil measurement
- LACT units
- Computers in production process operation

### **Special Problems**

- Water
- Paraffin
- Hydrogen sulfide