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### **Fundamentals of Reservoir Engineering Course Details**

**Department: Oil and Gas Energy** 

Presented by Magna Skills Development Institute

**Registration Link** 

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#### **Course Summary**

Fundamentals of Reservoir Engineering provides a comprehensive overview of key reservoir engineering concepts. The course begins with an overview of fluid properties and their behaviour under changing conditions; this is followed by an overview of material balance calculations which rely on PVT data. The next concept is fluid flow in porous media, which introduces permeability and Darcy's Law. This leads on to a review of well testing and the analysis of pressure data, one of the main sources of permeability estimates. The next two topics cover what the reservoir engineer has to deliver – production forecasts and resource estimates. The final topic will be Enhanced Oil Recovery (EOR).

#### **Course Objectives**

- To provide a comprehensive overview of key reservoir engineering concepts
- To provide an overview of fluid properties and their behaviour under changing conditions
- To provide an overview of material balance calculations which rely on PVT data
- To understand the concept of fluid flow in porous media and permeability and Darcy's Law
- To review of well testing and the analysis of pressure data, one of the main sources of permeability estimates
- To understand what the reservoir engineer has to deliver production forecasts and resource estimates
- To gain an understanding of Enhanced Oil Recovery (EOR)
- To understand the nomenclature and terminology used in the industry

#### **Course Outline**

#### **Fluid properties**

- PVT measurements
- Phase behaviour
- Fluid types
- Material balance

#### Fluid flow in porous media

- Permeability and Darcy's law
- Fluid viscosity
- Sources of permeability data

#### Two phase flow

- Capillary pressure
- Relative permeability data
- Well testing
- Well test operations
- Transient flow / semi-steady state flow
- Semi log plots
- Radius of investigation
- Skin formation damage

#### **Production forecasting**

- Recovery mechanisms
- Recovery factors
- Reservoir simulation
- Integrated production modelling

#### **Resource categories**

- Petroleum Resource Management System (PRMS)
- Contingent resources
- Proved and probable reserves

#### EOR

- Chemical flooding
- Thermal flooding
- Miscible gas flooding
- Immiscible gas flooding



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