Basic Reservoir Engineering

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Introduction:

This course presents the geologic origins and the important properties of petroleum reservoirs, and how to estimate their potential production. Participants learn through a combination of class problems and examples. It is designed to help the participants develop a more complete understanding of the characteristics of oil and gas reservoirs, from fluid and rock characteristics through reservoir definition, delineation, classification, development, and production.

Data collection, integration, and application directed toward maximizing recovery and Net Present Value are stressed. Basic reservoir engineering equations are introduced with emphasis directed to parameter significance and an understanding of the results. For nearly 30 years this has been one of our most popular and successful courses. This intensive course will raise participant's skill set beyond the fundamentals of reservoir engineering and provides an excellent opportunity to share ways to overcome challenges in the field.

Objectives:

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

- How to collect and analyze the data needed for reservoir engineering tasks.
- The fundamentals of fluid flow in porous media.
- How reservoirs are characterized by fluid type and drive mechanisms.

- The basis for reservoir fluid distribution.
- About oil and gas well performance and pressure buildup analysis.
- About oil displacement and optimizing reservoir performance.
- The basics of enhanced oil recovery.
- How oil and gas in place can be estimated and recovery predicted.

Who should attend?

Geologists, geophysicists, engineers, engineering trainees, technical managers, technical assistants, technicians, chemists, physicists, technical supervisors, service company personnel, sales representatives, data processing personnel, and support staff working with reservoir engineers and wanting to understand the process of reservoir definition, development, and production, or engineers newly placed in a reservoir engineering position that want a first reservoir engineering course at the basic level

Course Outline:

- Reservoir fluid properties
- Depositional environments, basic structures, and hydrocarbon traps
- Coring practices and reservoir rock properties
- Fundamentals of fluid flow
- Reservoir fluid distribution
- Reservoir classification

- Reservoir drive mechanisms
- Large scale exploration techniques
- The properties of reservoir rock, such as porosity, fluid saturation, pore volume, and permeability
- Reservoir fluid properties, such as API gravity, formation volume factor, gas solubility, density, and viscosity

- Common classes of reservoirs according to the types of fluids they contain and their characteristic performance
- Sources of reservoir data
- Oil and gas well performance, including inflow and outflow concepts
- Pressure buildup analysis
- Oil displacement concepts
- Estimation of oil-in-place and gas-in-place
- Recovery techniques