ICTD
المركز العالمي للتدريب والتطوير
International Centre For Training & Development

Fundamental Pressure-Volume-Temperature (PVT)

Course Introduction:

This course is designed to provide participants with a comprehensive understanding of the principles and applications of PVT analysis in the oil and gas industry. PVT properties are critical for evaluating reservoir performance, designing production systems, and optimizing hydrocarbon recovery. This five-day theoretical course covers the fundamental concepts of PVT behavior, measurement techniques, and the interpretation of PVT data.

Participants will explore the relationships between pressure, volume, and temperature in various fluid phases, including gas, oil, and water. The course will delve into the methodologies for conducting PVT experiments, including bubble point, dew point, and viscosity measurements. By the end of the course, attendees will be equipped with the knowledge and skills necessary to analyze PVT data and apply it effectively in reservoir engineering and production optimization.

Course Objectives:

By the end of the program, participants will be able to:

- Understand the fundamental principles of pressure, volume, and temperature relationships in fluids.
- Identify and apply various PVT measurement techniques.
- Analyze phase behavior and its implications for reservoir performance.
- Interpret PVT data to inform reservoir engineering decisions.
- Integrate PVT analysis into reservoir simulations and recovery strategies.

Who Should Attend?

This course is intended for:-

- Petroleum engineers and reservoir engineers.
- Geologists and geophysicists involved in hydrocarbon exploration.
- Laboratory technicians and researchers in PVT studies.
- Project managers and decision-makers in oil and gas operations.

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Course Outline:

Day 1: Introduction to PVT Concepts

- Overview of PVT analysis and its significance in reservoir engineering
- Definitions of key terms: pressure, volume, temperature, and phase behavior
- Understanding fluid properties: density, viscosity, and compressibility
- The role of PVT data in reservoir simulations and performance predictions

Day 2: PVT Measurement Techniques

- Overview of PVT laboratory equipment and setup
- Methods for measuring bubble point and dew point pressures
- Techniques for determining gas and oil densities
- Conducting viscosity measurements and analyzing results

Day 3: Phase Behavior of Hydrocarbons

- Understanding phase diagrams and their interpretation
- Analyzing single-phase and multi-phase behavior in reservoirs
- The influence of temperature and pressure on phase transitions

Day 4: PVT Data Interpretation

- Techniques for interpreting PVT experimental data
- Creating PVT tables and charts for reservoir fluids
- Using PVT data in material balance calculations
- Evaluating the impact of PVT properties on recovery strategies

Day 5: Applications of PVT Analysis

- Integrating PVT data into reservoir modeling and simulations
- The role of PVT in enhanced oil recovery (EOR) projects
- Best practices for reporting and utilizing PVT data
- Future trends and advancements in PVT analysis methodologies

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Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionaires
- Group Work

Course Fees:

To be advice as per course location. This rate includes participant's manual, Hands-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Timings:

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Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session