

## Oil & Gas Production Logging: Analysis, Interpretation & Optimization

### Course general description:

This intensive 5-day course provides comprehensive training on Production Logging Tools (PLT) and techniques used in oil and gas well diagnostics and optimization. Participants will learn about modern logging tools, data acquisition, interpretation methodologies, and practical applications in solving well production problems. The course combines theoretical concepts with real-world case studies and hands-on exercises.

### Audience:

This course is designed for:

1. Production Engineers
2. Reservoir Engineers
3. Well Completion Engineers
4. Production Operations Personnel
5. Well Intervention Specialists
6. Field Engineers involved in well diagnostics

### Course objectives:

By the end of this course, participants will be able to:

1. Understand the fundamentals of production logging physics and measurement principles
2. Develop proficiency in PLT tool selection and operational procedures
3. Learn to interpret complex production logging data and identify well problems
4. Understand multi-phase flow behavior and its impact on measurements
5. Gain expertise in diagnosing common well problems using PLT data
6. Apply production logging techniques for well performance optimization

### Course duration:

5 days

### Course location:

Dubai

### Course contents:

#### **Day 1: Fundamentals and Basic Measurements**

1. Introduction to production logging principles, wellbore flow regimes, and multi-phase flow behavior.
2. Overview of temperature, pressure, and spinner flowmeter measurements with calibration basics.
3. Review of formation evaluation, well completion impacts, and basic production testing concepts.

#### **Day 2: Advanced Production Logging Tools**

1. Applications of modern tools: array, nuclear, resistivity, and advanced flowmeters.
2. Specialty tools like noise logging, optical fiber systems, and combinable tool strings.
3. Understanding tool response, environmental effects, resolution, and quality control.

#### **Day 3: Data Acquisition and Quality Control**

1. Pre-job planning: well preparation, tool selection, logging program design, and safety.
2. Field operations: data quality control, repeat passes, and troubleshooting.
3. Ensuring data validity through processing, corrections, normalization, and identifying errors.

#### **Day 4: Data Interpretation and Problem Diagnosis**

1. Basic data analysis, including flow profile and holdup analysis for production allocation.

2. Advanced interpretation using cross-plots, computer-aided tools, and uncertainty analysis.
3. Problem diagnosis: detecting water/gas entry, cross-flow, scale, and corrosion issues.

#### **Day 5: Case Studies and Applications**

1. Real-world case studies and group exercises to apply learned concepts.
2. Best practices review, and lessons learned,
3. final assessment

#### **Methodology:**

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises
- 10% Discussions

#### **Course code: (TPTR002)**