€TRAINING

# Hydrocarbon Production Operations

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## Introduction:

Hydrocarbon production operations involve the processes and techniques used to extract, process, and handle oil and natural gas from reservoirs. This includes well operations, separation, treatment, and storage to ensure safe, efficient, and reliable production of hydrocarbons for market delivery. This training program delivers a comprehensive understanding of hydrocarbon production operations, covering the key processes, technologies, and best practices involved in extracting and managing hydrocarbons.

## Program Objectives:

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

- Explore the principles and processes of hydrocarbon production.
- Operate and manage production systems efficiently.
- Apply best practices for hydrocarbon separation and processing.
- Implement maintenance strategies to ensure equipment reliability.
- Address challenges and improve production performance.

## Target Audience:

- Production Engineers and Supervisors.
- Operations and Field Technicians.
- Maintenance and Reliability Professionals.
- Process Engineers.
- Oil and Gas Industry Professionals.

## Program Outline:

### Unit 1:

### Introduction to Hydrocarbon Production Operations:

- Overview of hydrocarbon production processes.
- The upstream production lifecycle: from extraction to processing.

- Production systems: onshore vs. offshore facilities.
- Key production equipment and their functions.
- Safety and environmental considerations in production operations.

## Unit 2:

## Production Flow Systems and Equipment:

- Basics of wellhead systems and flowlines.
- Gathering systems and fluid flow dynamics.
- Operation of separators, pumps, and compressors.
- Managing flow assurance issues hydrate formation, wax deposition.
- Understanding production flow optimization techniques.

## Unit 3:

## Hydrocarbon Separation and Processing:

- Principles of oil, gas, and water separation.
- Types of separators: 2-phase and 3-phase separators.
- Gas treatment and dehydration processes.
- Produced water handling and treatment.
- Overview of hydrocarbon stabilization and storage.

## Unit 4:

## Maintenance and Reliability in Production Operations:

- Preventive and predictive maintenance strategies.
- Managing equipment integrity and performance.
- Troubleshooting production issues pressure drops, equipment failures.
- Techniques for minimizing downtime and improving efficiency.
- Risk management and safety in maintenance activities.

## Unit 5:

## Production Optimization and Challenges:

- Strategies for optimizing production performance.
- Monitoring production data and KPIs.
- Addressing production challenges: sand control, reservoir pressure decline.
- Implementing enhanced oil recovery EOR techniques.
- Future trends in hydrocarbon production technologies.