

€ TRAINING

Foundations of Oil and Gas





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Introduction:

This is a comprehensive program designed to provide a deep understanding of the key disciplines essential to the exploration, extraction, and management of oil and gas resources. Through industry perspectives, geoscience fundamentals, and integrated development approaches, participants gain insights into the complex lifecycle of oil and gas assets.

Program Objectives:

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

- Understand the fundamental principles of oil and gas pipeline construction, including design considerations, material selection, and construction techniques.
- Demonstrate proficiency in pipeline maintenance practices, including inspection, repair, and integrity management.
- Apply safety protocols and best practices to ensure the protection of personnel, equipment, and the environment during pipeline construction and maintenance activities.
- Implement corrosion prevention and mitigation strategies to enhance the lifespan and reliability of pipeline infrastructure.
- Analyze regulatory requirements and compliance standards governing pipeline construction and maintenance operations.
- Develop comprehensive pipeline construction and maintenance plans, considering factors such as project scope, timeline, budget, and risk assessment.

Targeted Audience:

- Early career professionals within oil and gas and other energy sectors.
- Persons within service sector companies that serve the oil and gas industry.
- Commercial, financial, insurance, and legal professionals with energy interests.
- Those who are working for the government and non-government organizations that are involved in regulation and oversight.

Program Outlines:

Unit 1:

The Role of the Key Geoscience Disciplines:

- Industry Perspectives. The upstream oil and gas industry from various key "perspectives", such as the oil and gas asset lifecycle, the value chain, the industry players, and the place in society.
- Geology. The formation of oil and gas and the conditions for the existence of a "petroleum system" from which oil and gas may be produced.
- Geophysics. How geological structures deep below the earth's surface, and likely to contain oil and gas, are identified using sophisticated seismic and other survey techniques.
- Petrophysics. The physical and chemical properties of the rock and fluids that make up the reservoir, leading to an understanding of how the oil and gas can be extracted from the rocks and brought to the surface.

Unit 2:

The Role of the Key Engineering Disciplines:

- Reservoir Engineering. How oil and gas that is trapped in a reservoir can be drained in the most efficient way using natural and enhanced recovery mechanisms.
- Well, Engineering. How oil and gas wells are planned, drilled, tested, operated, and eventually decommissioned and made safe, and the techniques used to improve well performance.
- Facilities Engineering. The design, construction, and operation of equipment and structures to enable oil and gas emerging from the wells to be transported to a place of sale, for example, an oil refinery.

Unit 3:

The Role of the Integrated Development Team:

- Field Development Planning.
- How the integrated, team, drawn from all disciplines commercial, scientific, and engineering collaborate to identify the best way to develop a reservoir.

Unit 4:

Economics and Decision Making:

- Petroleum Economics. The role of economics in the planning of oil and gas developments, to maximize value, including the use of cash flow analysis, time value of money, and investment indicators.
- Decision Analysis. How the integrated field development team make complex decisions, involving many different types of input parameters, to ensure that very large investments are made rationally and efficiently, using tools such as expected value, sensitivity analysis, decision trees, and Monte Carlo simulation.



Unit 5:

Commercial, Safety, and Environment:

- **Production Contracts & Licences.** The legal, fiscal, and contractual conditions under which an oil company acquires the right to produce oil or gas, and the way that the revenue and wealth is shared with the host country.
- **Petroleum Resources Management.** How quantities of oil and gas in the reservoir reserves and resources are calculated, classified, and reported in a consistent manner for management, regulatory and investment and purposes.
- **Corporate Responsibility.** How oil and gas projects are executed safely and sustainably, with due respect for the environment, and in a way that benefits the local communities in which activities take place, covering topics such as safety, environmental impact and social license to operate.