

€ TRAINING

Oil and Gas Exploration and Production





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Introduction:

This training program focuses on educating participants about the processes and techniques involved in finding and extracting oil and gas resources. It equips individuals with the knowledge and skills required to efficiently and safely explore and produce oil and gas resources.

Program Objectives:

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

- Understand the principles and methods of geological surveys and exploration techniques used in the oil and gas industry.
- Demonstrate proficiency in drilling operations, including well planning, rig selection, and drilling techniques.
- Apply reservoir management strategies to optimize oil and gas production rates and maximize resource recovery.
- Implement production techniques such as hydraulic fracturing, well stimulation, and enhanced oil recovery methods.
- Implement safety protocols and best practices to ensure the protection of personnel, equipment, and the environment during exploration and production activities.
- Analyze economic and regulatory factors influencing oil and gas exploration and production decisions.

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 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, in order 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, in order 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 in a safe and sustainable manner, 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.