Understanding of Oil and Gas Engineering

Duration: 8 Hours (1 day)

Course Overview:

The oil and gas industry and its products play an important role in modern society and affect everyone's life. Oil and gas are the main sources of fuel and provide more than fifty percent of the world's energy demand. Oil and gas are related to electricity generation, a variety of petrochemicals, paints, asphalt pavement, and much more.

This industry includes three segments: exploration, production and drilling of oil and gas; an intermediate stream containing transportation and storage; processing and marketing of products.

Target Audience:

- Chemical engineers
- Process engineers
- Design engineers
- Process control personnel and technical staff in the refining, petrochemicals, chemical and process industries
- Production and Shift Supervisors in charge of distilling columns
- Field Operators
- Experienced field operators preparing for console operations

Course Outline:

Day 1

Module 1: Introduction to Oil and Gas Industry

- What is distillation?
- Types of distillation process
- Oil and Gas Lifecycle and facilities
- Simplified Version of Oil and Gas Facilities
- Oil and Gas Sector Study
- Oil and Gas Industry Distribution

Module 2: Oil and Gas Process Control

- Vaporization of a pure component at constant pressure
- Condensation of a pure component at constant pressure
- Oil and Gas Process
- Oil and Gas Exploration
- Case Study – Oil and Gas Extraction Process
- Facilities of Offshore Platforms
- Offshore Platforms
- Wellhead Interface

Module 3: Understanding of Oil and Gas Engineering

- Oil and Gas Industry Segments

- Oil and Gas Industry (Topside)
- Oil and Gas Industry (Subsea)
- Wellhead Control Panel (WHCP)
- Wellhead Control Panel Application
- Wellhead Control Panel Design Considerations
- Wellhead Control Panel Design Considerations
- Case Study of Wellhead Control Panel (WHCP) Manufacturing
- Choke Valve
- Choke Valve Purpose
- Choke Valve Application
- Fundamentals of Actuated Valve – Shutdown (XSDV)
- Introduction to Shutdown Valve
- Purpose of Shutdown Valve
- Design of Actuated Valve – Shutdown (XSDV)
- Design of Actuated Valve
- Design Implementation
- Fundamentals Motor Operated Valve (MOV)
- Fundamentals of MOV
- Design of Motor Operated Valve (MOV)
- Design of MOV
- Understanding of MPFM and Test Separator
- Comparison between MPFM and Test Separator

Module 4: Midstream Processes

- Introduction to Midstream Processes
- Midstream Processes
- Application of Midstream Sector
- Midstream Oil and Gas Operations
- Understanding Oil and Gas Operations
- Significant Activities in the Midstream Sector
- Activities from Midstream Sector
- Case Study Summary on Midstream Processes (Courtesy by Technip FMC)

Module 5: Downstream Processes

- Introduction to Downstream Processes
- Downstream Oil and Gas Operations
- Understanding of Downstream Oil and Gas Operations
- Refining - Products and Participants
- Consumption - Adding Value
- Case Study Summary on Downstream Processes (Courtesy by Technip FMC)