

€ TRAINING

Fundamentals of Process Technology





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Introduction:

This training program provides essential knowledge and skills for individuals entering the field of process technology. It equips learners with the foundational expertise needed to contribute effectively to various industries reliant on process technology.

Program Objectives:

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

- Understand the fundamental principles used in processes and facilities.
- Apply practical understanding of hydraulics and fluid flow.
- Apply learning from historical safety incidents.
- Perform relevant calculations & analyses to assist in operation, sizing & troubleshooting.
- Develop perspective & focus from a company viewpoint of the interaction of different engineering disciplines.

Targeted Audience:

- Petroleum Engineers.
- Maintenance & Production Engineers.
- Process Engineers.
- R&D Chemists, Plant Chemists.
- Economists & Business Managers.

Program Outlines:

Unit 1:

Introduction to Process Technology:

- Overview of process technology and its applications in various industries.
- Understanding the role of process technicians in industrial operations.

- Introduction to safety protocols and regulations in process industries.
- Basic principles of chemistry and physics relevant to process technology.
- Overview of process equipment and instrumentation.

Unit 2:

Process Control and Instrumentation:

- Fundamentals of process control systems and their importance in industrial operations.
- Introduction to process instrumentation including sensors, transmitters, and controllers.
- Basics of control loops and their components such as actuators and final control elements.
- Understanding process variables and their measurement in industrial processes.
- Introduction to distributed control systems DCS and programmable logic controllers PLC.

Unit 3:

Unit Operations and Unit Processes:

- Differentiating between unit operations and unit processes in industrial operations.
- Overview of common unit operations such as distillation, filtration, and mixing.
- Introduction to unit processes including chemical reactions and separation techniques.
- Understanding the principles and applications of heat transfer in unit operations.
- Overview of mass transfer processes and their significance in industrial processes.

Unit 4:

Safety and Environmental Practices in Process Industries:

- Importance of safety culture and hazard awareness in process industries.
- Overview of safety systems and protocols including process safety management PSM.
- Introduction to environmental regulations and their impact on industrial operations.
- Understanding the principles of risk assessment and mitigation in process industries.
- Overview of emergency response procedures and incident management in process plants.

Unit 5:

Process Troubleshooting and Optimization:

- Introduction to process troubleshooting techniques and methodologies.
- Overview of root cause analysis RCA and failure mode and effects analysis FMEA.
- Understanding the principles of process optimization and efficiency improvement.
- Introduction to statistical process control SPC and quality assurance techniques.
- Overview of maintenance strategies and reliability-centered maintenance RCM in process industries.