Chemical Engineering for Non Chemical Engineers

Introduction

The success of every company depends of each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. Training and development is an investment in future success - give yourself and your employees the keys to success

It is strategically important that your operations team understands the fundamentals of process unit operations concepts. This is the difference between being in the best quartile of operational ability and being in the last quartile. There is vast difference in the operational ability of operating companies and most benchmarking studies have confirmed this gap in operational abilities.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts is very beneficial in closing the gap if you are not in the best quartile, or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operational principles is the most effective way to obtain the desired results. Training and learning should be an on going continuous life long goal.

Course Objective

This course will guide the participates to develop key concepts and techniques of chemical engineering. These key concepts can be utilized to make operating decisions that can improve your company's performance.

Many aspects of chemical engineering management can be improved including, product recoveries, purities and energy utilization, and safety. This cannot be achieved without first an understanding of basic fundamental principles of chemical engineering. These principles need to be understood in advance of operating and trouble shooting a process unit operation for the manager or problem solving to be effective.

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This seminar focuses on the core building blocks of chemical engineering systems, equipment and economics. This seminar identifies the areas of chemical engineering that are most commonly encountered by the non-specialist with examples that will be drawn from a range of process industries including oil and gas processing, petrochemicals, chemical manufacturing.

In this seminar you will learn;

1. To interpret flow sheets and process flow diagrams
2. Develop and understand mass and energy balances in process design
3. Learn about fluid flow, pumps and compressors, and mixing
4. Discuss heat transfer equipment and their design, including heat exchangers
5. Understand distillation and separations used in oil and gas processing
6. Discuss waste treatment minimization and treatment
7. Learn how to control processes
8. Perform a basic economic analysis of a project
9. Understand the safety and environmental responsibility of process engineering

Outline

Introduction

- Overview of the Chemical Processing Industry

Review of Process Incidents

- Safety for the Processing Industry

Fundamentals of Chemistry

- Description of a Hydrocarbon Molecule
- Types of Hydrocarbon Molecules
- Definition and Function of a Catalyst

Introduction to Unit Operations Equipment

- Distillation

- Absorption
- Heat Exchange
- Reactors
- Pumps
- Compressors
- Furnaces

Introduction to Fluid Flow and Mixing

Introduction to Process Control and Instrumentation

Introduction to the Energy and Material Balance

Introduction to Thermodynamics and Equilibrium

Introduction to Reaction Engineering

Introduction to Separation and Mass Transfer Operations

- Distillation
- Adsorption
- Crystallization
- Filtration
- Membrane

Process Operations and Troubleshooting

Introduction to Unit Operations Economics

Who Should Attend:

- This program has been designed for non-technical professionals assigned to positions in petroleum refineries, corporate offices, suppliers and other interrelated companies.

- The content of the program is based upon the assumption that those in attendance do not have a formal education in engineering and chemistry and do not work in highly technical environments.

- Attendance at this course will be beneficial to support personnel such as

    1. Environmental professionals,
    2. Accountants,
    3. Business managers,
    4. Administrative and legal staff,
    5. Sales and marketing personnel
    6. Insurance representatives,
    7. Personnel managers,
    8. Financial professionals, and
    9. Government officials.

- The program should be used for newly-hired refinery plant personnel and may serve as a prerequisite for those who do not have a technical background but who want to attend the more detailed processing program for technical professionals.

- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.

- People who have technical or refinery background should consider attending our alternated program - Introduction to Petroleum Refining Processes and Economics

- Other professionals who desire a better understanding of subject matter

What you can expect to gain:

- An overview of chemical engineering operations, safety, processes and economics
- Become familiar with the equipment of a chemical engineer
- Become familiar with the unit operations of chemical engineering
- Become familiar with margins and economics

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