

<p style="text-align: center;"><b>KLM Technology Group</b></p> <p>Practical Engineering Guidelines for Processing Plant Solutions</p>		<p style="text-align: right;">Page 1 of 5</p> <p style="text-align: right;">Rev 3.0</p>
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## **Introduction to the Refining and Petrochemical Processes for Non Technical Professionals**

### **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 are 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 for the refining and petrochemical processes. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Many aspects of refining and petrochemical operations 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 design and operation. 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 the refining and petrochemical process systems, equipment and economics. This program will emphasize the refining and petrochemical process unit operation fundamentals, safe utilization of these fundamentals by operations, engineering, maintenance and support personnel.

## Outline

### Introduction

- Overview of the Chemical Processing Industry

### Review of Process Incidents

- Safety for the Chemical Processing Industry

### Fundamentals of Petroleum Chemistry

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

### Introduction to Petrochemical Key Concepts

- Unit Operations
- Process Flow Diagrams
- Mass Balance

### Introduction to Refinery and Petrochemical Equipment

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

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#### Overview of a Refinery

- Introduction to the Refinery Flow Sheet
- Characteristics of Crude Oil
- Crude Oil Distillation

#### Overview of an Ethylene (Olefin) Plant

- Introduction to the Ethylene Plant Flow Sheet
- Types of Feed stocks

#### Overview of Ethyl Benzene / Styrene Plant

- Introduction to the Ethyl Benzene / Styrene Plant Flow Sheet
- Catalyst Review

#### Overview of BTX Separation Plants

- Introduction to BTX Separation Flow Sheet

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## Who Should Attend:

- This program has been designed for non-technical professionals assigned to positions in refineries and petrochemical plants, 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.
- Other professionals who desire a better understanding of subject matter

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<b>KLM Technology Group</b>  Practical Engineering Guidelines for Processing Plant Solutions	 The logo consists of a rectangular frame divided into two sections. The left section contains the letters 'KLM' in a bold, red, sans-serif font. The right section contains the words 'Technology' and 'Group' stacked vertically in a blue, sans-serif font.	Page 5 of 5  Rev 3.0
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### **What you can expect to gain:**

- An introduction of the refining and petrochemical operations, processes and economics
- Gain an understanding of the equipment of a refining and petrochemical plant
- Gain an understanding of the refining and petrochemical flow sheets
- Gain an understanding of refining and petrochemical chemistry and catalyst
- Gain an understating of the refining and petrochemical margins

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