

# A 4 Day Course on Fundamental of the Petrochemical Industry

## Part 1: Ethylene and Its Derivates Part 2: Aromatics and Derivates

**CEPP**  
Chemical Engineering  
Pilot Plant

*From specialty chemical partners...*

UTM City Campus, Kuala Lumpur, Malaysia



duration/4 days

date/4-7 Dec 2006 or  
3-6 April 2007

### Course Introduction

This two part program was designed to serve as a guide to understanding petrochemical industry.

Part 1 of the program focuses on one of the core building blocks of the petrochemical industry; ethylene and its derivatives. Sector covered include:

1. Ethylene Plants
2. Ethyl Benzene/Styrene Plants
3. Ethylene Oxide/Glycol Plants
4. Vinyl Chloride Plants
5. Ethanolamine Plants
6. Other Ethylene Derivates

Part 2 of the program focus on a second core building block of the petrochemical industry; aromatics and its derivatives. Sectors covered include :-

1. Catalytic Reformers
2. BTX Separation Plants
3. Xylene Separation Plants
4. Aromatics Derivates

### Course Objectives

At the end of the course, the participants will :-

1. have a better understanding on the two key building blocks of the petrochemical industry.
2. also gain practical knowledge on the operations, control and troubleshooting of petrochemical units and their associated equipment.

### Who Should Attend

**Professionals** who are making decisions with regard to the design, operation and economics of petrochemical plants : Plant Managers, Process Support Engineers, Operation Engineers, Design Engineers, Senior Plant Supervisors.

**Ideal for** veterans or experienced professionals who want to reinforce their practical experience, and to review and broaden their understanding in Petrochemical Plant Operation.

**Ideal for** graduates or professionals who are new in this area.

**Other professionals** who desire a better understanding of the subject matter.

### Course Outline

#### Day 1

##### Introduction

- Overview of the Petrochemical Industry
- Chemistry of the Petrochemical Industry
- Fundamental of Distillation
- Optimize Distillation Column Design for Improved Reliability in Operation and Maintenance
- Catalyst Evaluation Techniques

##### Ethylene Plants

- Overview of Ethylene Plant
- Process Variables
- Ethylene Furnace Review
- Ethylene Distillation Troubleshooting
- Ethylene Distillation Review

#### Day 2

##### Ethylene Plants Continued

- Designing Distillation Columns for Fouling Service
- Acetylene Reactor Catalyst Review
- Ethylene Plant Economics and Optimization
- Flare Safety Review

##### Ethyl Benzene/Styrene Plants

- Overview of Ethyl Benzene Plant
- Process Variables
- Overview of Styrene Plants
- Process Variables
- Designing Distillation Columns for EB/Styrene Plants
- Catalyst Review

#### Day 3

##### VCM Plants

- Overview of Vinyl Chloride Plant
- Process Variables
- Design Distillation Columns for VC Service
- Environmental Concerns

##### Ethanolamine Plants

- Overview of Vinyl Chloride Plant
- Process Variables
- Design Distillation Columns for Ethanolamine Plants
- Design Guidelines for Improved Products and Recoveries

##### Catalytic Refoming Plants

- Overview of Catalytic Refoming Plants
- Acetylene Reactor Catalyst Review
- Ethylene Plant Economics and Optimization
- Flare Safety Review

#### Day 4

##### BTX Separation Plants

- Overview of BTX Separation
- Liquid/Liquid Extraction versus Extractive Distillation
- Process Variables
- 2<sup>nd</sup> Stage Gasoline Hydro Treater Units(GHU)
- Designing Columns for BTX Separation Plants
- Designing Extraction Distillation Columns
- Benzene and Toluene Derivative Overview

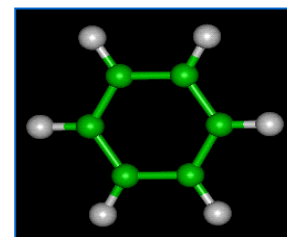
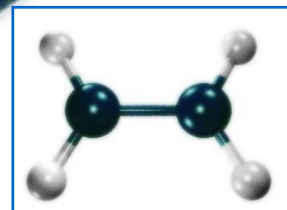
##### Xylene Separation Plants

- Overview of Exylene Separation
- Crystallization versus Adsorption
- Process Variables
- Designing Columns for Xylene Separation Plants
- Xylene Derivative Overview

## Mr. Karl Kolmetz



**MR. KARL KOLMETZ** | He is currently the General Manager for KLM Technology Group. He has over twenty-five years of progressive experience in the design, construction, commissioning, and operations management of process units from the US Gulf Coast to Alaska through Asia. He has a strong background in the manufacturing of a wide variety of chemical process technologies and product categories including; cryogenic liquids, ethylene, propylene, benzene/toluene extraction, styrene, catalytic reforming, crude atmospheric/vacuum fractionation, polyvinyl chloride, and steam /power plant operations. Mr. Kolmetz has substantial experience in the design and trouble shooting of distillation columns, which is one of the key unit operations in hydrocarbon production. His experiences includes four eyes of Construction, two of which were on the Alaskan Pipeline with Fluor Daniel. Seventeen years of Refining experience, including eleven years in Catalytic Reforming, in The Charter/Phibro Refinery (now Valero Refinery) in Houston, Texas. One year of commissioning experience with Raytheon Badger EB/Styrene plants in Asia. Seven years Ethylene experience: four years in Louisiana and three years in Malaysia. Presently is the Asian Assistant Technology Manager for Sulzer Chemtech a leading distillation tower internals manufacturer. Karl has a Degree in Chemical Engineering from the University of Houston and is a member of the American Institute of Chemical Engineers.



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### Some of these companies are :

PETRONAS, SHELL, BP, SAUDI ARABIA BASIC IND. CORP.  
(SABIC), QATAR LNG, ALMARAI (SAUDI ARABIA), IDEMITSU,  
EASTMAN CHEMICALS, BASF PETRONAS, KUWAIT  
INSTITUTE for SCIENTIFIC RESEARCH, YOZAI,  
SUDAN REFINERY etc

### Method of Payments

Please kindly complete and return the reply form together with :

#### Local Participants

- By cheque / Bank draft which are made payable to  
**PHYTO BIZNET SDN BHD**

#### International Participants

- By Direct Transfer/Bank Draft:  
CEPP Bank details: **Bumiputra Commerce Bank Berhad**  
**Universiti Teknologi Malaysia**  
**81310 UTM Skudai, Johor, Malaysia**
- Account No : **0118-0004178-05-7**
- Please instruct your bank to remit us the full amount, net of bank charges.

### Cancellation & Substitutions

A full refund will be promptly made for all written cancellations 2 weeks before the meeting. 50% refund will be made for written cancellations received 7 days before the meeting. A substitute may be made at any time.

**Note** a) The organiser has the right to make any amendments that they deem to be in the best interest of the course and to cancel the course if insufficient registrations are received a week before course commencement date .

**B) CERTIFICATE OF ATTENDANCE** will be awarded at the end of the course.

*We can offer courses in-house at your company*

### Course Fee

	Single	2 or more
<b>Local Participant (RM)</b>	<b>2250</b>	<b>2050</b>
<b>International Participant (USD)</b>	<b>1950</b>	

*(Fee is inclusive of lunch, refreshments and course materials)*

## REPLY FORM

### FUNDAMENTALS of the PETROCHEMICAL INDUSTRY

Part 1 : Ethylene and Its Derivates

Part 2 : Aromatics and Derivates

CEPP, UTM *City Campus*, KUALA LUMPUR, MALAYSIA

- Please tick ( x ) where appropriate

4 -7 Dec 2006

3 - 6 April 2007

**YES !** I would like to register the following participants

Name 1 \_\_\_\_\_

Job Title \_\_\_\_\_

Name 2 \_\_\_\_\_

Job Title \_\_\_\_\_

### COMPANY INFORMATION

Company \_\_\_\_\_

Address \_\_\_\_\_

Town \_\_\_\_\_

State \_\_\_\_\_

Tel \_\_\_\_\_ Fax \_\_\_\_\_

**AUTHORISED Signatory** (\*This registration is invalid without signature form an authorised officer)

Name \_\_\_\_\_

Job Title \_\_\_\_\_

Tel \_\_\_\_\_ Fax \_\_\_\_\_

## ENQUIRIES

CHEMICAL ENGINEERING PILOT PLANT, UNIVERSITI TEKNOLOGI MALAYSIA

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