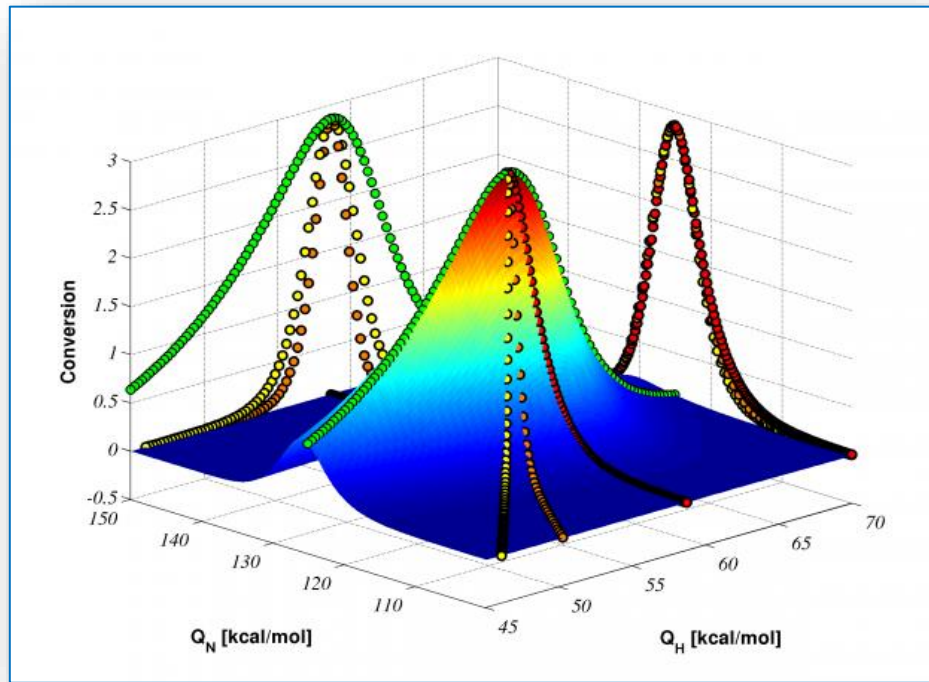




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PCE215

Catalyst Selection & Production Optimization

Course Introduction:

The success of every company depends of each employee's understanding of the business's key 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.

Most unit operations are divided in to two sectors; the reactor section and the separation section. The high value products are produced in the reactor section and purified in the separation section. The proper reactor design and catalyst selection can greatly improve company profit margins. The net effect is to produce increasing amounts of higher value products by improving selectivity.

Reactor design and catalyst developments are one of the largest Research and Development (R&D) Divisions in Chemical Engineering. To stay abreast of the current reactor designs and catalyst developments should be an operations personnel's target.

This course covers a general overview of the Catalytic Processes in a Refinery and how each integrates with the high value products, with a special emphasis on Fluidized Catalytic Crackers, and Catalytic Reformers. A history of each Catalytic Process will be reviewed including; process description, process variables, reaction chemistry, catalyst development and evaluation.

Course Objectives:

This course will guide the participants to develop key concepts and techniques to operate, select and optimize refinery catalytic processes. These key concepts can be utilized to make design and operating decisions. Training and development is an investment in future success – give yourself and your employees the keys to success.

Upon successful completion of this course, the delegates will gain knowledge in:

- ✓ Overview of the Catalytic Processes in a Refinery, with a special emphasis on Fluidized Catalytic Crackers, Hydrotreaters and Catalytic Reformers
- ✓ Catalyst Evaluation Techniques
- ✓ An understanding of Reactor and Catalyst interaction
- ✓ The operation, control and trouble shooting of a reactors and associated equipment
- ✓ An overview of reactors, practical solutions as well as theory
- ✓ An understanding of essential reaction concepts
- ✓ Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of reactor operations

- ✓ Develop key concepts and techniques to operate, select and optimize refinery catalytic processes.
- ✓ To tailor your approach to specific design, analysis and troubleshooting problems

Who Should Attend?

This course is intended for all process engineers, production engineers, section heads, senior operators, shift controls, shift supervisors, technicians, plant operators, maintenance personnel, laboratory analysts, chemist engineers and those who are connected with catalyst and process reactors.

Course Outline:

Day 1:

Introduction

- Refinery Overview
- Chemistry Overview

Alkylation

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Day 2:

Hydrogenation

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems

- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Dehydrogenation

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Day 3:

Isomerization

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Hydrocracking and De-Alkylation

- Introduction
- History
- Process Overview
- Process Chemistry Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Day 4:

Fluidized Catalytic Cracking

- Introduction
- History
- Process Overview
- Process Chemistry Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Hydro-treating/Hydrodesulfurization

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Day 5:

Catalytic Reforming

- Introduction
- History
- Process Overview
- Process Chemistry
- Feedstock, Reaction, Catalyst
- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques
- Summary

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Fees:

To be advised as per course location. This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20 Morning Coffee / Tea

08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session

