CATALYST TECHNOLOGY IN REFINERY & PROCESS INDUSTRY

TRAINIT ACADEMY

PCE202

Process and Chemical Engineering

COURSE TITLE

CATALYST TECHNOLOGY IN REFINERY & PROCESS INDUSTRY

COURSE DATE/VENUE

24 – 28 January, 2021

Dubai, UAE

COURSE REFERENCE

PCE202

COURSE DURATION

05 Days

DISCIPLINE

Process and Chemical Engineering

COURSE INTRODUCTION

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.

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, Catalytic Reformers and Hydro-processing. A history of each Catalytic Process will be reviewed including; process description, process variables, reaction chemistry, catalyst development and evaluation.

COURSE OBJECTIVE

Upon successful completion of this course, participants will have:

- An overview of the Catalytic Processes in a Refinery, with a special emphasis on Fluidized Catalytic Crackers, Hydrotreaters, Hydrocracking and Catalytic Reformers.
- Catalyst Evaluation Techniques
- An understanding of Reactor and Catalyst interaction
- The operation, control and troubleshooting of a reactor 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
- Understand how to tailor your approach to specific design, analysis and troubleshooting problems.
- What can be done in-house and what can be done with specialist software.

COURSE AUDIENCE

- Process Engineers, Operation Engineers, Process Support Personnel, Chemist, and Managers
- People who are making day to day decisions regarding operation, design, maintenance, and economics of process industry plants.
- An engineer or chemist who must troubleshoot and solve catalyst problems in a plant, an engineering office or laboratory.
- Engineering graduates/technologists who will be using catalyst in their daily work.
- Technical Process engineers doing process design and optimization projects and studies that need who need advanced skills for more complex modeling tasks.
- Plant Operation Support Engineers checking plant performance under different operating conditions, and who are involved in design of new facilities or revamps of existing facilities.
- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding of process safety.
- Other professionals who desire a better understanding of the subject matter.

COURSE CONTENT

DAY 1

- **Course Introduction & Pre-assessment**
- **Introduction**

  Refinery Overview and the role of Catalytic Process in the Refinery

  Alkylation

  Hydrodesulphurization

  Hydrogenation

  Dehydrogenation

  Isomerization

  Hydrocracking and De-Alkylation

  Reforming
- **Hydrogenation**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques

DAY 2

- **Dehydrogenation**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

- Process Variables
- Common Problems
- Advance in Cat Development
- Catalyst Evaluation Techniques

- **Case Studies**

- **Hydro-treating / Hydro-desulfurization**

  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

  - Process Variables
  - Common Problems
  - Advance in Cat Development
  - Catalyst Evaluation Techniques

DAY 3

- **Catalytic Reforming**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

  - Process Variables
  - Common Problems
  - Advance in Cat Development
  - Catalyst Evaluation Techniques

- **Troubleshooting Skills – Working Groups**
- **Hydro-cracking and De-Alkylation**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

  - Process Variables
  - Common Problems
  - Advance in Cat Development
  - Catalyst Evaluation Techniques

DAY 4

- **Fluidized Catalytic Cracking (FCC)**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

  - Process Variables
  - Common Problems
  - Advance in Cat Development
  - Catalyst Evaluation Techniques

- **Troubleshooting Skills – Working Groups**

DAY 5

- **Alkylation**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

  - Process Variables
  - Common Problems
  - Advance in Cat Development
  - Catalyst Evaluation Techniques

- **Isomerization**
  - Process Overview
  - Process Chemistry

Feedstock, Reaction, Catalyst

  - Process Variables
  - Common Problems
  - Advance in Cat Development
  - Catalyst Evaluation Techniques
  - Current Advancements in Catalyst
  - Catalyst Evaluation Techniques

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

$4,150 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises
- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions