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المركز العالمي للتدريب والتطوير
International Centre For Training & Development

PCE249

Petroleum Refining & Economics for Traders: Operation of Steam Crackers

Course Introduction:

Taught by an acclaimed energy industry expert, this five-day course is filled with tips, techniques and insights those only years of successful refinery & energy trading experience can bring.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- ✓ Develop a solid foundation in understanding how a refinery works, what the main processes within a refinery are, what are the economic evaluations done by refineries daily and how these will impact supply of petroleum and/or petrochemical products/feed streams.
- ✓ You will explore the nuances and quirks specific to the refining process, understand the risks and rewards across various economic planning steps and improve your understanding towards developing a successful oil/petrochemical trading career.

Who Should Attend?

This course is intended for all functional areas in the oil and petrochemical industries as well as those in the banking and financial sectors which oversee this dynamic and volatile sector. Individuals in every functional area of responsibility in all energy industries whose decisions have significant financial impact will benefit from this program. Managers from areas such as marketing, sales, manufacturing, engineering, supply and distribution, trading risk management, purchasing, as well as financial and accounting will all find the course highly beneficial.

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Course Outline:

Day 1:

The Basics: Petroleum Refining Process Overview

- Evaluation of crude oils & assays
- The Atmospheric Distiller
- Operations
- Cut points & side streams
- Refinery Products & Characteristics

Hands-on-Problems

- Atoms & Molecules
- Refinery contamination handling
- The (no) Good, The Bad and The Ugly things to watch out for the Four PONA Cousins
- Paraffins, Olefins, Naphthenes and Aromatics
- Isomers and others

Day 2:

Light Ends Fractionation & Processing: The Saturated Gas Plant

- All refinery processes generate light ends that have to be handled with care from a plant safety standpoint as well as recognizing that these lighter molecules are also worth lots. We will review the following aspects:
- What are light ends?
- Saturated gas plant process
- Products from the gas plant and their dispositions / end usage
- Other light ends processes

Naphtha and the Catalytic Reforming Process

- What are naphtha streams?
- Naphtha splitters
- Chemistry of the reforming process
- Role of catalytic reformers
- Technologies & operating parameters
- Reformates and aromatics
- Products dispositions

Day 3:

Gasoline Blending

- Building blocks in mogas blending: vapor pressure and octane number
- Other blending considerations
- Effects of tetraethyl lead in mogas
- Blending procedures
- Impact on refinery operations

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Middle Distillates Hydro-treating Processes

- Hydrogen & its value in a refinery
- Hydro-treating steps
- Merox Units for Jet Fuel
- Catalytic hydro-desulfurization for diesel fuels
- Sulfur and the sulfur recovery process

Day 4:

Residual Fuel Upgrading Processes

- Vacuum distillation
- Thermal cracking
- Coking
- Visbreaking

Fuel Oil Blending

- Density
- Sulfur
- Metals
- Viscosity
- Pour point
- Flash point

Day 5:

Refinery Complexity & The Nelson Index

- Topping refinery
- Hydro-skimming
- Cracking
- Coking

Petrochemicals: Olefins & Aromatics

- Naphtha to petrochemical building blocks
- Aromatics
    - What are aromatics & olefins?
    - Aromatic processes & key technologies
    - Aromatic products and their end usage
    - Typical aromatics economic problems
- Olefins
    - Steam crackers & olefin products / end usage
    - What affects steam cracker operating margins
    - Differences between petrochemical & oil trading

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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 Questionaires
- 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	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Coffee/Tea/Snacks)
13:30 - 15:00	Last Session

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