TRAINING TITLE

HYDROTREATING & HYDROCRACKING PROCESS UNITS OPERATION TROUBLE TROUBLESHOOTING START -UP & SHUT DOWN

Training Duration

5 days

Training Venue and Dates

PE071	Hydrotreating & Hydrocracking Process Units Operation Trouble Troubleshooting Start -Up & Shut Down	**5**	**27-31 Jan. 2025**	**$5,500**	**Dubai, UAE**

In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- **$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch**

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

TRAINING WORKSHOP DESCRIPTION

Hydrotreating and Hydrocracking Overview

Hydrotreating: Removes impurities (sulfur, nitrogen) from feedstock using hydrogen and catalysts.

Hydrocracking: Converts heavy oils into lighter products through cracking and hydrogenation.

Common Troubleshooting Issues

1. **Catalyst Deactivation**: Leads to lower yields; consider regeneration or replacement.
2. **Pressure Drops**: Check for blockages or leaks affecting throughput.
3. **Temperature Fluctuations**: Inspect control systems and heat exchangers.
4. **Hydrogen Supply Issues**: Ensure adequate hydrogen flow to maintain product quality.

Start-Up Procedures

1. **Pre-Checks**: Inspect equipment and ensure feedstock/hydrogen availability.
2. **Gradual Heating**: Slowly increase temperature while monitoring parameters.
3. **Feed Introduction**: Introduce feed gradually with hydrogen.
4. **Stabilization**: Monitor until conditions stabilize.

P.O BOX 45304
ABU DHABI, U.A.E
T +971 2 6264455
F +971 2 6275344
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Shut Down Procedures

1. **Controlled Shutdown**: Gradually reduce feed and hydrogen flow.
2. **Depressurization**: Follow safety protocols to depressurize.
3. **Cooling**: Allow the unit to cool down gradually.
4. **Final Checks**: Inspect for maintenance needs before restart.

These concise steps help maintain efficient and safe operations in hydrotreating and hydrocracking units.

TRAINING OBJECTIVES:

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

Product Quality Improvement:

- Enhance the quality of fuels by removing impurities (sulfur, nitrogen) and increasing octane or cetane ratings.

Maximize Yield:

- Convert heavier fractions into more valuable lighter products, such as gasoline and diesel.

Catalyst Efficiency:

- Maintain catalyst performance to ensure optimal reaction conditions and minimize downtime.

Environmental Compliance:

- Meet regulatory requirements for emissions and product specifications, reducing the environmental impact of fuel production.

Operational Safety:

- Ensure safe operation during start-up, shutdown, and normal processes to prevent accidents and equipment damage.

Cost Efficiency:

- Optimize operating conditions and maintenance to reduce overall production costs.

WHO SHOULD ATTEND?

- **Refinery Operators**
- **Process Engineers**
- **Maintenance Personnel**
- **Safety Officers**
- **Quality Control Analysts**
- **Project Managers**
- **Environmental Compliance Specialists**
- **Training and Development Coordinators**

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TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your questions and to share in the development of the right answers using your analysis and experiences. Tests of multiple-choice type will be made available daily to examine the effectiveness of delivering the course.
All presentations are made in excellent colourful PowerPoint. Very useful Course Materials will be given.

- **25% Lectures**
- **30% Workshops and work presentation**
- **25% Group and individual Works & Practical Exercises, Role Plays, Functionals Exercises, gamification, Questionnaires**
- **20% Videos Case Studies Assessments & General Discussions**

COURSE PROGRAM

Day 1: Introduction and Fundamentals

- Overview of Refining Processes
- Introduction to Hydrotreating and Hydrocracking
- Key Terminology and Concepts
- Feedstock Characteristics

Day 2: Hydrotreating Process

- Mechanisms and Chemistry of Hydrotreating
- Reactor Design and Operation
- Catalyst Selection and Management
- Operational Parameters and Control

Day 3: Hydrocracking Process

- Mechanisms and Chemistry of Hydrocracking
- Reactor Design and Types (Fixed-bed, Fluidized-bed)
- Catalyst Functions and Regeneration
- Operational Parameters and Control

Day 4: Troubleshooting and Safety Procedures

- Common Operational Issues and Solutions

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- Start-Up and Shut Down Procedures
- Safety Best Practices and Regulatory Compliance
- Emergency Response Protocols

Day 5: Advanced Topics and Review

- Latest Technologies and Innovations
- Case Studies of Successful Operations

NOTE:
Pre & Post Tests will be conducted.
Case Studies, Group Exercises, Group Discussions, Last Day Review, and assessments will be carried out.

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