

**Training Title**

**CLEAN FUEL TECHNOLOGY AND STANDARDS**

**Training Duration**

**5 days**

**Training Venue and Dates**

<b>PE144</b>	<b>Clean Fuel Technology and Standards</b>	<b>5</b>	<b>21-25 April 2025</b>	<b>\$5,500</b>	<b>Dubai, UAE</b>
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In any of the 4 or 5-star hotels. The exact venue will be informed once finalized.

**Training Fees**

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments, and Lunch.

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

**TRAINING DESCRIPTION**

As refiners and chemical producers worldwide see higher crude oil and feed prices and continued demand for clean transportation fuels and lower production costs, a sound knowledge of clean fuel technology, specifications, standards, analysis, and quality monitoring is essential to understand its effect on engine performances as well as the emissions impact on environment.

This course has been developed to provide an in-depth, yet a practical review of the art and science of "Clean Fuel Technology and Standards" in modern refineries. The program's content is both comprehensive and wide-ranging. The course will emphasize clean fuels chemistry, manufacturing technologies, blending, handling and troubleshooting techniques that would lead ultimately to improved fuel utilization, optimization, and enhanced organizational economics. The course also will guide the participates to develop key concepts and techniques for the refining of petroleum processes and clean fuel manufacturing economics. These key concepts can be utilized to make operating decisions that can improve the overall refinery performance and economics.

In addition to the scientific procedures and contents of this course, many case studies and implementations are planned to be presented in an open discussion forum with the participants.

The course provides both theoretical and practical knowledge and skills highlighting:

- Fuel quality fundamentals
- Fuel production technologies
- Euro 5 and Euro 6 fuel specifications
- Gasoline specifications
- Jet Fuel specifications
- Diesel specifications
- Fuel quality monitoring system

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## **TRAINING OBJECTIVES**

**By the end of this course, participants will learn to:**

- Describe clean fuels chemistry, manufacturing technologies, and standards.
- Compare testing parameters for gasoline, jet fuel, and road diesel.
- Explain how fuel properties influence engine performance.
- Explain ultra-low sulfur diesel properties and their impact on fuel performance.
- Troubleshoot quality problems and contamination of fuels.
- Discuss fuel quality monitoring system.
- Increase fuel efficiency keeping safety as a prime consideration
- Improve On-Time performance while reducing operational expenses
- Conduct a "Fuel Efficiency" audit of your organization
- Develop Fuel Efficiency Program Evaluation tools

## **WHO SHOULD ATTEND?**

**This training course is suitable for a wide range of professionals but will greatly benefit:**

- Operation Engineers
- Process Engineers
- Senior Operation Personnel
- Operation Staff
- Technical Supervisory Staff
- Plant Engineers
- Fuel quality specialists

## **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 motivate everybody find the right answers. 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.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

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## **DAILY OUTLINE**

### **DAY ONE**

#### **MODULE 1: INTRODUCTION TO OIL REFINING AND FUEL QUALITY FUNDAMENTALS**

- Crude oil chemistry and properties
- Classification of crude oils

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- Crude assays and valuation
- Petroleum product specifications
- Petroleum products standardization and quality control
- Introduction to oil refineries
- Refinery configurations
- Case study: Impact of refinery configurations on fuel specifications

## **DAY TWO**

### **MODULE 2: GASOLINE: TECHNOLOGY AND STANDARDS**

- Gasoline chemistry
- Manufacturing technologies: Naphtha Hydrotreater, Catalytic Reformer, Isomerization and Alkylation Units
- Gasoline specifications and quality monitoring system
- Testing parameters for gasoline
- Composition, Combustion Characteristics, Octane Number, Corrosiveness, Density, Flash Point and Fire Point, Oxygenates, Stability, and Instability, Volatility
- Effect of fuel properties on engine performance
- Troubleshoot quality problems and contamination of gasoline
- Case Study: Catalytic Reformer

## **DAY THREE**

### **MODULE 3: JET FUEL: TECHNOLOGY AND STANDARDS**

- Jet fuel chemistry
- Manufacturing technologies
- Jet fuel specifications and quality monitoring system
- Testing parameters for Jet fuel
- Acidity, Calorific Value, Density, Flash Point, Freezing Point, Storage Stability, Thermal Stability, Viscosity, Volatility, Water
- Effect of fuel properties on engine performance
- Troubleshoot quality problems and contamination of jet fuel
- Case Study: Hydrocracking Unit

## **DAY FOUR**

### **MODULE 4: DIESEL FUEL: TECHNOLOGY AND STANDARDS**

- Diesel fuel chemistry
- Manufacturing technologies (Hydro processing)
- Diesel fuel specifications and quality monitoring system
- Testing parameters for Diesel fuel

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- Acidity, Sulfur content, Appearance and Odor, Ash, Calorific Value, Carbon Residue, Cetane Number and Cetane Index, Cloud Point, Composition, Diesel Index, Flash Point, Freezing Point, Neutralization Number, Pour Point, Stability, Viscosity, Volatility, Water and Sediment
- Ultra-low sulfur diesel
- Effect of diesel fuel properties on engine performance
- Troubleshoot quality problems and contamination of diesel fuel
- Case Study: Hydro processing

## **DAY FIVE**

### **MODULE 5: EURO 5 AND EURO 6 FUEL SPECIFICATIONS AND EMISSIONS STANDARDS**

- Overview of Euro 5 and Euro 6 fuel specifications and emissions
- Quality control of products in petroleum refining
- Clean Fuel specifications
- Sampling procedures
- Case-Study: Ultra Low Sulfur Diesel manufacturing and specifications

**NOTE:**

**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**



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P.O BOX 45304  
ABU DHABI, U.A.E

T +971 2 6264455  
F +971 2 6275344

[www.definettraining.com](http://www.definettraining.com)