MERCURY

Petroleum Refining-Production Planning, Scheduling, and Yield Optimization

7 – 18 June 2027
Rome (Italy)



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Ref: 6060_280057 **Date:** 7 – 18 June 2027 **Location:** Rome (Italy) **Fees:** 10500 Euro

Introduction

This petroleum production planning, scheduling, and yield optimization program is specifically designed to identify and resolve issues of production planning and scheduling in petroleum refineries that are most commonly encountered by refinery personnel working in this area. Issues of operations scheduling for petroleum refining are discussed in depth.

Participants in the petroleum production planning, scheduling, and yield optimization course will also be enhanced and provided with planning and scheduling examples that provide background information relevant to the topic of petroleum production planning and scheduling.

Additionally, the petroleum production planning, scheduling, and yield optimization program will present a detailed overview of refining process yields, from the crude oil feed to the finished products. Major refining processes are presented and discussed, including feedstock, feedstock preparation, operating conditions, catalysts, yields, product properties, and economics.

The petroleum production planning, scheduling, and yield optimization program is oriented toward the practical aspects of refinery operations as well as the terminology and economics of refining.

Enhancing Yield Optimization through Advanced Production Planning and Scheduling

In the petroleum training course, participants will delve into the meaning of yield optimization and explore the role of a yield optimizer in the context of petroleum production. The segment focuses on the practical optimization of petroleum production systems, including insight into liquefied petroleum gas production and the variety of oil and petroleum products available on the market.

The principles entailed in refining scheduling in production planning and the advanced techniques in production planning and scheduling will be covered. With in-depth production planning and scheduling training, attendees will grasp the factors influencing yield optimization in the refining of petroleum.

Understanding the definition of refining petroleum and exploring what scheduling is in production planning are foundational aspects of advanced production planning and scheduling. This comprehensive production planning training course will imbue participants with knowledge and application in optimization petroleum technologies to enhance refinery processes and ultimately boost profitability through refined production planning training.

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Targeted Groups

- Refining Professionals work in the industry either as Refining Technologists or in refining operations and as engineers.
- All professionals involved in Production, Planning, and Scheduling.
- Process Engineers and Technologists engaged in planning and scheduling activities are required to understand and discuss issues related to their industry.
- Operations Personnel, including Shift Supervisors.
- Marketers and Refinery Planners.
- Blending Professionals.
- Refining Technologists.
- Other Engineers who are seeking would like a further understanding of the complex refining processes.
- Accountants, Marketers, and Other Professionals aim to understand the complexities and terminology of production planning and scheduling in petroleum refineries.
- This petroleum production planning, scheduling, and yield optimization course is for persons who wish to update themselves on the methods used in this critical field and learn how to implement error-free methods for the benefit of their organizations.

Course Objectives

At the end of this petroleum production planning, scheduling, and yield optimization course, the participants will be able to:

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- Gain an appreciation of production planning and scheduling tools that will be useful for planning crude and product deliveries.
- Discover and appreciate the similarities and differences between planning and scheduling.
- Understand the principles of scheduling optimization and promote efficient refining operations and yield optimization.
- Learn the skills of crude selection and optimization that result in improved profitability.
- Develop the skills necessary to apply blending techniques using Excel.
- Learn how to familiarize yourself, understand the various refinery types, and appreciate how refining complexity impacts the optimization of petroleum technologies and refining margins.
- Comprehend the importance of quality giveaways and learn how to use practical Excel spreadsheets for blending calculations to reduce quality giveaways.
- Use hands-on software that allows professionals in the industry to choose different crude diets to optimize refinery utilization efficiency and profitability.
- Act as a primer into the petroleum refining sector and familiarize industry professionals with all processes associated with the processing of petroleum into finished products.
- Equip new engineers in the industry with the essential tools for understanding the complex nature of refining and its operations.

Targeted Competencies

At the end of this petroleum production planning, scheduling, and yield optimization course, the target competencies will be able to:

- Crude oil characteristics.
- Refinery configuration and complexity.
- Primary refinery process operations.
- Environmental issues affecting refinery operations.
- Develop optimization strategies and methods.
- Improving the planning and scheduling operations will enhance profitability.
- Act as a primer in the petroleum refining industry to maximize process fluid yields.
- Familiarize with all processes associated with the processing of petroleum into finished products.
- Understand tools for the complex nature of refining and its operations.

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Course Content

Unit 1: Application of Planning and Scheduling

- Refinery configuration:

- Hydro skimming refinery.
- Refineries with secondary conversion processes.
- Integrated refineries.
- Existing and new refineries.
- Choice of crude.
- Crude oil scheduling.
- Choice of processes.
- Capacity utilization of crudes.
- Severity of process operations.
- Cut-points optimization.
- Face upset situations.
- Tankage requirement.

Unit 2: Improving Product Movements and Releasing Tankages

- Basic information is required.
- Crude assay.
- Intermediate feed characteristics.
- Yields and properties.
- Different process units.
- Utilities.

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Unit 3: Product Blending Rules

- Product specifications.
- New trends in fuel production.
- Environmental issues.
- Crude cost.
- Product netback.

Unit 4: Formulation of Problem

- Refinery flow-sheets.
- Simplify material balance.
- General formulation.
- Demand equations.
- Product inventory control.
- Product quality control.
- Fix composition blend.
- Capacity control/constraints.
- Availability of feedstock/control.

Unit 5: Application to a Refinery Worksheet

- Understand what petroleum product movement and product exchange are.
- Marginal depot supply and movements.
- Learn about commonly used methods and recent developments.
- Mathematical approach to solution.
- Linear programming.
- Graphic method.
- Vendor software.

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Unit 6: Crude Oil Yields Refinery Technology

- Crude oil origins and characteristics.
- Understand crude oil assay and properties.
- Crude oil products.
- Product specifications.
- Gasoline.
- Learn about kerosene/jet fuel.
- Fuel oil/diesel fuels.
- Petrochemical feedstocks.
- Refinery complexity.
- Overview of overall refinery flow: Interrelationship of processes.

Unit 7: Petroleum Refinery Processes

- Crude processing.
- Desalting.
- Atmospheric distillation.
- Vacuum distillation.
- Heavy oils processing - cocking and thermal processes.
- Delayed coking.
- Fluid coking.
- Flexicoking.
- Visbreaking.

Unit 8: Process for Motor Fuel Production

- Fluid catalytic cracking.
- Hydrocrack.
- Cat cracking.
- Isomerization.
- Alkylation.
- Hydrotreat.
- Catalytic reforming.

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Unit 9: Supporting Operations

- Blend for product specifications.
- Hydrogen production.
- Refinery gas plants.
- Acid gas treating.
- Sulfur recovery plants.

Unit 10: Refinery Economics

- Residue reduction.
- Learn about asphalt and residual fuel.
- Cost estimation.
- Economic evaluation.