MERCURY

Petroleum Refinery Production Planning & Scheduling

18 – 22 October 2027
Brussels (Belgium)

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Petroleum Refinery Production Planning & Scheduling

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Petroleum Refinery Production Planning & Scheduling is a one-week course on turning a monthly run plan into a day-by-day sequence of feedstock receipts, tank transfers and fuel blends that the site can execute. It suits planners, schedulers, blenders and shift supervisors who already work with assay data and tank inventories. You build a Plan-to-Schedule Workbook for your own site. Mercury Training Center runs this one-week edition of the subject.

About This Course

Monthly plans often look sound on paper and then break in the tank farm: a cargo arrives late, a blend misses its specification, or a conversion section trips. To follow the course you should already read assays and inventory reports at work. You practice on spreadsheet cases and small LP models, one decision at a time.

Who It Is For

- People who set the monthly feed slate, run rates and sales volumes for a site
- People who sequence tank receipts, transfers and shipments shift by shift
- People who write blend recipes and release finished fuels against their specifications
- People who supervise shift operations and respond when a plan meets an upset
- People who supply the commercial and cost data the monthly plan depends on

This course is not for readers new to the industry, who need an introductory course on how a plant turns feed into fuels, or for equipment designers, who need a process design course.

Competencies You Will Build

- Plan-schedule linkage: turns monthly targets into daily movements the tank farm can carry out.
- Feedstock selection: compares cargoes on assay and netback before a purchase is committed.
- Blend recipe control: builds recipes that meet specifications with little giveaway.
- Tankage management: keeps tank levels safe while freeing space for incoming parcels.
- Model formulation: writes balance, demand and capacity constraints an LP model can solve.
- Upset response: re-sequences receipts and blends within hours of a trip or delay.

What You Will Be Able to Do

By the end of the course you will be able to:

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- From feedstock assays and a site flow sheet, rank candidate cargoes by netback.
- Given sales demand and opening inventories, build a material balance that shows where storage runs short.
- Using blending rules and specification sheets, calculate a diesel recipe and check its giveaway.
- Given demand, quality and capacity constraints, formulate a small LP model and interpret its marginal values.
- From a feasible monthly plan, derive a two-week schedule of receipts, transfers and liftings.
- Given an upset scenario, revise that schedule and state which sales targets are at risk.

Course Content

Day 1: Site Configuration and the Planning Cycle

- Hydroskimming, Conversion and Integrated Site Configurations
- Plan Versus Schedule: Horizons and Decision Owners
- Feedstock Choice and Capacity Utilization by Site Configuration
- Section Severity and Cut-Point Settings as Planning Levers
- Tankage Requirements for Existing and Expanded Sites

Day 2: Data That Feeds the Plan

- Assay Interpretation for Comparing Candidate Cargoes
- Intermediate Stream Characteristics Between Conversion Sections
- Section Yield and Property Tables for the Base Case
- Utilities Balance: Steam, Power and Hydrogen Limits on Throughput
- Improving Tank Movements to Release Storage Space

Day 3: Blending Rules and Fuel Specifications

- Gasoline, Jet and Diesel Specification Sheets in Recipe Design
- Index-Based Blending Rules for Octane, Vapor Pressure and Sulfur
- Fixed-Composition Blends Versus Optimized Recipes at the Blend Header
- Feedstock Cost and Netback in Blend Decisions
- Environmental Limits and Cleaner Fuel Trends in Recipe Choices

Day 4: Formulating the Planning Model

- Site Flow Sheets and Simplified Material Balances
- Demand Equations and Finished Fuel Inventory Control
- Quality, Capacity and Feedstock Availability Constraints
- Graphic Method and LP Model Solutions for Small Cases
- Reading Marginal Values and Vendor Planning Software Outputs

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Day 5: Scheduling Practice and Your Workbook

- Exercise: Two-Week Movement Schedule Built From the Formulated Plan
- Exercise: Depot Supply, Marginal Liftings and Fuel Exchanges Between Sites
- Exercise: Re-Sequencing Receipts and Blends After a Section Upset
- Exercise: Cargo Choice Review Using Earlier Assay Data
- Completing Your Plan-to-Schedule Workbook

Case Studies and Exercises

The activities below are suggested.

- Case study: A fuels plant expects two feedstock cargoes in one week with only one free tank; you decide the receipt sequence and which blend to defer.
- Case study: A petrochemical complex that draws naphtha from a fuels plant faces a feed shortfall; you produce a revised monthly feed split.
- Exercise: A fuel distribution terminal must supply several depots as its sulfur limit tightens; you produce a recipe and lifting plan.
- Exercise: A conversion section trips mid-month at a fuels plant; you produce a revised two-week schedule and list the sales targets at risk.

What You Take Back

The Plan-to-Schedule Workbook is a spreadsheet you build across the one week around your own site's configuration. In your first month back, use it to test next month's plan against storage space and blend specifications before it is issued, and again whenever an upset forces a change.

- A feedstock comparison sheet with assay cuts and netbacks
- A simplified material balance with demand and inventory rows
- Blend recipe calculators for gasoline and diesel against specification
- A two-week movement schedule template with an upset checklist

Quick Answers FAQ

What should I know before a refinery production planning and scheduling course?

You should already read assay data, tank inventory reports and fuel specification sheets in your daily work. Basic spreadsheet skills are enough; the LP models are built step by step.

How does a one-week refinery planning and scheduling course differ from a longer course that adds yield improvement?

The one-week course stays on the plan and the schedule: feedstock choice, tank movements, blend rules and model formulation. A longer course on the subject adds conversion technology and section yields for readers who need process detail.

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What is the difference between refinery planning and refinery scheduling?

Planning sets monthly targets for feed, run rates and sales from averaged yields and an LP model. Scheduling turns those targets into a daily sequence of receipts, transfers, blends and liftings that respects tank levels and timing.

What do I take back from a refinery production planning and scheduling course?

You take back the Plan-to-Schedule Workbook, built on your own site's configuration. It holds your feedstock comparison, material balance, blend calculators and a two-week movement schedule ready for next month's plan.

For Your Manager

After the course, the team member will be able to check a monthly plan against tank space, blend specifications and cargo timing before it is issued, and re-sequence movements when a section trips or a cargo slips. They return with a Plan-to-Schedule Workbook built on the site's own configuration, first used when the next monthly plan is prepared.

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