

Production Planning & Scheduling in Petroleum Refineries Masterclass



Optimising Crude Selection, Blending, Capacity & Product Profitability

Focus on: **The Manager** ☒ **The Specialist** ☒ **Spotlight Programme** ☐ **Hands-on Skills** ☐

Course Overview

Modern refineries operate in an environment of tightening margins, fluctuating crude quality, stricter product specifications, and increasing operational complexity. Effective production planning and scheduling is no longer a support function — it is a critical driver of refinery profitability, asset utilisation, and supply chain performance.

This Production Planning & Scheduling in Petroleum Refineries Masterclass is designed to equip professionals with practical tools, modern techniques, and real-world insight into refinery planning, scheduling, blending, and optimisation.

Delegates will gain a clear understanding of how crude selection, unit constraints, tankage, blending rules, and product movements interact — and how these elements can be optimised using structured planning approaches, Excel-based models, and linear programming concepts.

The Masterclass blends refinery fundamentals with applied planning methods to help participants improve operational efficiency, reduce losses, and maximise product value.

Course Objectives		This Course is Ideal For:	
1	Distinguish clearly between planning and scheduling — and apply both effectively in combination	✓	Refinery Production, Planning, and Scheduling Personnel
2	Understand refinery configurations and their impact on operations	✓	Process Engineers and Refining Technologists
3	Select and optimise crude slates for improved profitability	✓	Operations Staff and Shift Supervisors
4	Apply basic blending techniques using Excel and linear programming principles	✓	Refinery Planners and Marketers
5	Interpret crude assays, yields, and intermediate feed characteristics	✓	Blending Professionals
6	Learn how to manage product movements, tankage, and custody transfer both efficiently and effectively	✓	Engineers seeking a broader understanding of refinery planning impacts
7	Apply scheduling optimisation principles in daily refinery operations	✓	Accountants, commercial staff, and other professionals who support refinery operations

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Course Content

Day	Theme	Coverage
1	Refinery Planning Fundamentals	<ul style="list-style-type: none"> • Role of planning and scheduling in refinery performance • Differences between planning and scheduling • Refinery complexity and configurations • Integrated refinery operations • Introduction to crude selection and crude oil scheduling • Capacity utilisation and operational efficiency • Workshop: Cut-point optimisation
2	Crude Assays, Yields & Product Movement	<ul style="list-style-type: none"> • Understanding crude assays and feedstock characteristics • Process units and yield behaviour • Intermediate streams and property management • Storage tanks and tankage optimisation • Custody transfer and measurement fundamentals • Improving product movements and tank availability • Practical exercise: Excel-based yield optimisation
3	Blending, Specifications & Commercial Drivers	<ul style="list-style-type: none"> • Product blending rules and constraints • Finished product specifications • New trends in fuel production • Environmental considerations • Crude pricing mechanisms • Product netback concepts • Practical blending examples
4	Material Balances & Operational Control	<ul style="list-style-type: none"> • Refinery flow diagrams and simplified flow sheets • Material balance development • Product inventory control • Product quality management • Fixed composition blending • Capacity constraints and control • Feedstock availability and operational limitations
5	Refinery Optimisation & Integrated Scheduling	<ul style="list-style-type: none"> • Integrated refinery planning and scheduling • Petroleum product movements and exchanges

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		<ul style="list-style-type: none">• Marginal supply and depot optimisation• Crude selection strategies• Introduction to linear programming• Supply chain fundamentals for refining• Pulling it all together: planning workflows, optimisation concepts, and best practices• Final discussion and summary
Course Assessment		Certification
Participants will be assessed on:		Upon successful completion of the course, participants will receive a Certificate of Successful Completion , along with a Transcript of Marks showing the performance by grade in each element of assessment and overall.
Participation in sessions		
Completion of exercises & case studies		
Performance in assessments		
Course Instructor		
<p>With BSc and PhD degrees from the UK, and with over 30 years of refinery technology, operations, and management expertise for several famous-name oil companies, this speaker is now an internationally-famous chemical engineering consultant.</p> <p>As a Chartered Chemist, a Member of the Royal Society of Chemistry and a Member of the American Institute of Chemical Engineers, he holds honorary appointments at a number of European universities and conducts cutting-edge research into vacuum distillation, gas recovery, absorption and pyrolysis.</p>		