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COURSE BROCHURE

Refining and Petrochemicals Fundamentals Training Course

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Kuala Lumpur

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Refining and Petrochemicals Fundamentals Training Course

Ref: 1403_52461 **Date:** 12 – 16 September 2027 **Location:** Kuala Lumpur **Fees:** 4900 GBP

Refining and Petrochemicals Fundamentals is a 1-week training course for non-technical and newly hired technical staff in refining and petrochemical companies, ending with a crude-to-product flow map of a real site. Feed changes, tighter fuel specifications and shifting margins between fuels and chemicals mean every function, from finance to procurement, now talks in barrels, cuts and cracker yields. Jupiter Prime Training offers this introduction to refining and petrochemicals.

Why Refining and Petrochemicals Matters Now

Three pressures shape refining and petrochemicals today. Integrated sites are shifting more of each barrel towards chemicals such as ethylene, propylene and aromatics, which ties refinery decisions to polymer markets. Cleaner fuel specifications push sulphur and benzene limits down, so hydrotreating and blending matter more. And a generation of experienced operators is retiring, leaving commercial, planning and support staff who must follow unit conversations without an engineering degree. Sites where these staff grasp yields, cut points and crack spreads decide faster; elsewhere margin leaks through misunderstanding. The course rests on crude assay practice and standard refinery margin concepts.

Who Gains Most from Refining and Petrochemicals

- Staff who buy crude, catalysts or chemicals and must judge supplier specifications
- Staff who forecast, schedule or report unit throughput and product volumes
- Staff who sell fuels, olefins or polymers and explain grades to customers
- Staff who support plant operations in safety, laboratory or document control roles
- Newly hired graduates joining process, planning or commercial departments

Commercial and support departments gain most when several members attend together and leave with one shared picture of how their site turns crude into saleable products.

Refining and Petrochemicals Capabilities

Participants follow a molecule from crude tanker to polymer bag.

- Assess a crude assay for density, sulphur and cut yields — for crude purchasing discussions
- Trace streams through distillation, cracking, reforming and hydrotreating units — for planning conversations
- Apply blending rules for octane, vapour pressure and sulphur — for product quality decisions
- Describe olefin and aromatic routes from naphtha and ethane — for chemicals sales and supply teams
- Calculate a simple gross refining margin and crack spread — for finance and commercial colleagues

- Build a crude-to-product flow map of a site — for induction of new colleagues

Key Refining and Petrochemicals Terms

- Crude assay — a laboratory profile of a crude oil showing density, sulphur and the yield of each boiling range.
- API gravity — a scale of crude density; higher values mean lighter crude that yields more gasoline and naphtha.
- Fluid catalytic cracking — a conversion unit that breaks heavy gas oil into gasoline and light olefins over hot catalyst.
- Catalytic reforming — a unit that rearranges naphtha molecules into high-octane reformate and releases hydrogen.
- Steam cracker — a furnace unit that splits ethane or naphtha into ethylene, propylene and by-products.
- Crack spread — the difference between product prices and crude cost, used as a quick margin indicator.

Refining and Petrochemicals Day by Day

Day 1: Crude Oil and the Refinery Map

- Hydrocarbon Families and Crude Composition — Why Crudes Price Differently
- Crude Assays, API Gravity and Sulphur — Selecting Feed for a Site
- Simple, Cracking and Coking Refinery Configurations — Matching Crude to Hardware
- Product Slate From LPG to Bitumen — Linking Cuts to Markets
- Tank Farms, Crude Receipt and Desalting — Protecting Downstream Units

Day 2: Separation and Conversion Units

- Atmospheric and Vacuum Distillation Columns — Setting Cut Points and Yields
- Fluid Catalytic Cracking and Hydrocracking — Upgrading Heavy Gas Oil
- Catalytic Reforming and Isomerisation — Raising Gasoline Octane
- Delayed Coking and Visbreaking — Handling Vacuum Residue
- Hydrotreating and Sulphur Recovery — Meeting Clean Fuel Limits

Day 3: Product Blending and Petrochemical Feedstocks

- Gasoline Blending for Octane and Vapour Pressure — Avoiding Off-Spec Batches
- Diesel and Jet Fuel Properties — Cold Flow, Flash and Sulphur Checks
- Naphtha, LPG and Ethane as Cracker Feeds — Choosing Feed Flexibility
- Steam Cracker Furnaces and Cold Box Separation — Ethylene and Propylene Yields
- Aromatics Extraction of Benzene, Toluene and Xylenes — Serving Chemicals Buyers

Day 4: Polymers and Refinery Economics

- Polyethylene and Polypropylene Grades — Matching Resin to Packaging and Pipe
- Polymerisation Reactors and Pelletising — From Monomer to Saleable Bag
- Gross Refining Margin and Crack Spreads — Reading Site Profitability Signals
- Linear Programming Models for Crude Selection — How Planners Choose Feeds
- Refinery and Cracker Integration — Moving Molecules to Chemicals

Day 5: Practising the Crude-to-Product Flow Map

- Assay Reading for a Sample Crude — Applying Day 1 Properties
- Unit Sequence Exercise From Column to Hydrotreater — Applying Day 2 Units
- Blend and Feed Choice Scenario — Applying Day 3 Specifications
- Margin Calculation for Two Crude Options — Applying Day 4 Economics
- Crude-to-Product Flow Map Drafting — Units, Streams, Products and Buyers

Applying Refining and Petrochemicals After the Course

- Walk a new colleague through the site's units using the drawn stream map and product slate.
- Recalculate last month's crack spread for the main product and compare it with reported margin.

Refining and Petrochemicals Questions FAQ

What are refining and petrochemicals fundamentals and why do they matter now?

They are the basic steps that turn crude oil into fuels, olefins, aromatics and polymers. They matter now because sites are shifting towards chemicals, fuel limits are tighter, and many non-engineers must follow unit decisions.

Which roles gain most from refining and petrochemicals fundamentals?

Purchasing, planning, sales, finance, laboratory and safety staff gain most, along with new graduates who need to follow how crude becomes saleable products before specialising.

How does refining and petrochemicals fundamentals training differ from a refinery yield optimisation course?

This course explains what each unit does in plain terms for newcomers. A yield optimisation course assumes that knowledge and works on detailed models, catalysts and constraints to raise margin.

What do you bring back from refining and petrochemicals fundamentals training?

You bring back a drawn map of how crude moves through your site into products and buyers, plus the vocabulary to follow planning and operations meetings.

Refining and Petrochemicals: The Way Forward

The crude-to-product flow map first helps decide which units and streams a new starter must learn about in their first month. Line managers use it for induction, commercial staff use it to explain grades, and planners use it to frame crude choices. After its first use, revisit how chemicals feeds are drawn, since integration between refinery and cracker keeps changing.