

COURSE CONTENTS

1. Petroleum Refining Industry in and Future Trends
2. Recent developments in Petroleum Industry /Technologies
3. Chemistry of Crude Oil: Composition and Classification
4. Crude Oil Evaluation Techniques (for fuels/lube/feedstock)
5. Lab distillation, their inter conversion and significance
6. Pretreatment of Crude Oil/Desalting Operation
7. General refinery configuration (Fuel, Lubes and Petrochemical Integration)
8. LPG-domestic, industrial and Auto) & Motor spirit (Including Ethanol Blending)
9. Naphtha – specifications for different end users, test methods and significance
10. Kerosene / ATF and Diesel (Including Biodiesel)
11. FO/LSHS/HPS – Grades/Specifications/Test Methods
12. LOBS, Waxes and Greases – Grades/Specifications/Test Methods
13. RPC/CPC/Needle Coke/Bitumen – Grades/Specifications/Test Methods
14. Petrochemical products Specifications – LAB,PX,PTA, Propylene, Benzene, Toluene etc.
15. Specialty Products – FGH/MTBE/Butene-1 /IOC-solvent/ White oil etc.
16. Basic Testing Principles/Lab & Pilot Plant visits etc.
17. Crude Oil Distillation (Atm & Vacuum)
18. Column Internals and Operational Tips
19. Fundamental – Operation of catalytic Reforming Units (CRU/CCRU)
20. Fluid Catalytic Cracking (FCC/RFCCU)
21. Liquid-liquid Equilibrium - Principle of Solvent Extraction
22. Lube Extraction (NMP & Furfural)
23. Solvent Extraction (BTX)
24. De-asphalting of Short Residue for Lubes and other Feed Stocks
25. Solvent Dewaxing, Deoiling and Manufacture of Waxes including Isodewaxing
26. Hydrogen Generation Units – Steam Reforming Process
27. Hydrogen Management / Pinch in Oil Refinery
28. Diesel Hydro treatments (DHDS/DHDT)
29. Hydro cracking Units HCU/OHCU
30. Visbreaking unit
31. Delayed Coking Unit/Technology
32. LPG/Gas Treating Unit
33. Isomerization/MSQ Units
34. Sour Gas Treatment(Amine–Absorption & Amine Recovery Units) Sour Water Treatment Units
35. Recovery Units
36. Bitumen blowing Unit/Biturox Process and Bitumen Emulsion
37. Product Blending Procedures/Systems and Advances
38. Tank Farm Management and Receipt / Dispatch Operations in OM&S
39. Industrial Water Treatment for Steam generation/Cooling
40. Integration of Refinery and Petrochemicals – Olefins/Aromatics/Polymer
41. Production of PX/PTA and Downstream Applications
42. Polypropylene/MTBE/Butene-1 Units
43. MEG and Down stream Products/Applications
44. Solution Process (Swing Operations) for HDPE/LLDPE and Downstream Products
45. Slurry Process technology for HDPE
46. Production of LAB

47. Naphtha /Gas cracker for olefins(Ethylene/Propylene) Production
48. Rotary Equipments Operations and Reliability
49. Heat Transfer Equipments (Exchangers/Coolers/Heaters/Boilers etc.) Operation, Safety and Reliability Issues
50. Shift Management/Leadership during Normal/Emergency and Shut down activities
51. Basics of Plant Simulation
52. Distillation Column Design
53. Column Internal & Tray Hydraulics
54. Basics of Pinch (Hot, Cold & Grand Composite) & Heat Exchanger Train Synthesis
55. Preliminaries of Heat Exchanger Design
56. Basics of Vessel/Tanks/Process & Utility Piping /Flare Design
57. Preliminaries of Process Equipment Data sheets and related standards(APIs, TEMA)
58. Design case studies/simulators hands on practice
59. ADVANCE Process control,
60. Refinery Economics (RPMS/IP Crude Procurement / Pricing etc.)
61. Process Safety (Management of Change/HAZOP/Risk Analysis)
62. Energy Conservation Practices/Systems/Audits
63. Environment Management; Waste Water Treatment, Emission Control, CDM etc.
64. Alternative Fuels -LNG, CNG, Gas Hydrates etc.
66. Role of Catalysts in Petroleum Refining
67. Corrosion problem in Refinery
68. Instrumentation Process Control
