

SYLLABUS :-

Prerequisite - CH30009 or equivalent

Origin of petroleum crude oil. Evaluation of crude oil - evaluation and characterization of crude oil : TBP and other distillation tests. Petroleum products, their properties, specification and testing - different properties like flash point, fire point, smoke point, aniline point, carbon residue, kinematic viscosity, pour point, freezing point etc. Use of crude book data. Petroleum refinery distillation - pre-fractionation and atmospheric distillation of crude. Process design for atmospheric distillation. Stabilization of naphtha. Vacuum distillation of RCO. Reforming of naphtha. Other secondary processes like Vis-breaking, Furfural/Phenol/NMP extraction, Solvent dewaxing, propane deasphalting. Delayed coking process. FCC unit. Hydrotreatment processes in refining: hydro-desulfurisation, hydrofinishing, Hydrocracking. Production of lube oil base stock. Refinery equipment : furnaces, distillation columns, reactors, pumps, compressors and piping. Environmental impact of refineries.

Text Book:

1. Petroleum Refinery Engineering by W. L. Nelson
2. Petroleum Refining, Technology & Economics by J. H. Gray & G. E. Handwerk
3. Petroleum Refinery Distillation by R. N. Watkins
4. Modern Petroleum Refining Processes by B. K. B. Rao

Reference Book:

1. The Chemistry & Technology of Petroleum by J. G. Speight