

**Syllabus for Paper II for Admission to Ph.D in the Department of Petroleum Studies , session 2018-19**

1. Transport Processes: Velocity, Temperature and concentration profiles by shell balance and by equations of change.
2. Reaction Engg & Reactor Design: Analysis of reaction rate data for single and multiple reactions. Analysis of heterogeneous reactions, Multiphase reactors, non ideality in reactors.
3. Process Dynamics & Control: Analysis of lumped parameter and distributed parameter systems, Classical control methods for linear system, stability and optimum controller setting, Advance control systems, computer aided process control.
4. Petroleum Processing and Petrochemicals: Evaluation of crude oil, testing of petroleum products, crude oil distillation, Secondary and finishing processes. Petrochemical Industry: overview, preparation of feed stocks, Petrochemicals from C1, C2, C3, C4 and Cyclic hydrocarbons with unit process involved. Gas Processing.
5. Polymer Science and Technology: Basic concepts of polymers, Polymer reaction kinetics, Rheology and Viscoelasticity and Polymer Processing.