
Course Title : Introduction to Industrial Heterogeneous Catalysis

- **Aim:**

Understanding the basic principles of heterogeneous catalysis; Learning the general methods of catalysts preparation, characterization, and measurement of catalytic properties; Application of heterogeneous catalysis in hydrocarbon industry and environmental protection

- **Syllabus:**

- ✓ Fundamentals of industrial heterogeneous catalysis
- ✓ Catalyst Preparation and Manufacturing
- ✓ Physical Characterization and Measurement of Catalytic Properties
- ✓ Kinetics of heterogeneous catalytic reactions
- ✓ Modeling and analysis of catalyst pellets
- ✓ Modeling and analysis of catalytic reactors
- ✓ Deactivation and poisoning of catalysts
- ✓ Mathematical analysis of catalysts under deactivation
- ✓ A complete case study of a catalytic reaction, analysis of pellet, and reactor under deactivation

- **Reading Resources:**

Heterogeneous Catalysis in Industrial Practices, 2nd ed., C. N. Satterfield McGraw-Hill, Inc., 1996