

Refinery and Petrochemical engg.

5th sem.

Petrochemical Technology

CO-1 To provide an overview of Petrochemical industry.

LO-1 To classify feedstock used in Petrochemical industry.

Content - Petrochemical feed stock - Introduction, petro-chemical feed stock and their classification, forms of Natural gas, Transportation of gaseous and liquid feed stock, schematic representation for refinery equipments.

Method of assessment - External theory exam hrs-3 Marks-10

LO-2. * Select suitable conversion process in Refinery and petrochemical plant.

Content - Introduction, types, and effect of reaction conditions and process variables on cracking, reforming, alkylation and isomerisation processes, introduction to pyrolysis and visbreaking process

Method of assessment - Internal Midsem test hrs.- 8 Marks-10

CO-2 To explain polymerisation mechanism used in polymer industries.

LO-3. To understand the concept of polymerisation.

Content - Polymerisation - Introduction, addition, co and condensation polymerisation, thermal and catalytic polymerisation, effect of reaction conditions in polymerisation, Functionality and Mechanism of

polymerisation.

Method of assessment - External theory exam. hrs - 8 Marks - 10

LO-4 - Select suitable polymerisation technique for the production of petrochemicals.

content - Polymerisation techniques, and their advantages and disadvantages - Bulk, Solution, Suspension, Emulsion and Melt polymerisation techniques.

Method of assessment - External theory exam hrs - 8 Marks - 10

CO-3 - Select suitable To understand the concept and processing of rubber and plastics.

LO-5 Explain the different process technology used for rubber

content - Rubber - Introduction, types of rubber, vulcanization of rubber, compounding and reclamation of rubber, compounding of rubber with plastic

Method of assessment - External theory exam hrs - 8 Marks - 10

LO-6 Demonstrate the manufacture of natural rubber.

content - Preparation of natural rubber from latex.

Method of assessment - Inter Practical (Lab work) hrs - 4 Marks - 10

LO-7 Select suitable processing and testing methods for plastic

content - Plastic and its importance, classification and moulding constituents of plastic, processing of thermoplastics and thermosetting plastics, quality

Teacher's Sign.....

Control test for plastics.

Method of assessment - Internal Mid sem test hrs - 8 Marks - 10

LO - 8 Preparation of thermosetting plastic and determine yield percentage yield.

Content - Preparation of urea formaldehyde and phenol

formaldehyde plastic/resin and determine its percentage yield.
Method of assessment - External Practical hrs - 6 Marks - 10

LO - 9 Apply suitable testing methods for plastics and polymer testing.

Content - Quality control test of plastics like MFI, hardness test, tensile and compression test.

Method of assessment - External Practical hrs - 8 Marks - 10

CO - 4 Illustrate processes of production of important rubber and plastics.

LO - 10 Describe production and uses of some synthetic rubber.

Content - Manufacturing processes and uses of Neoprene, butadiene, isoprene, S.B.R and Butyl rubber

Method of assessment - Internal sessional/Quiz (Term work) hrs - 8 marks - 10

LO - 11 Explain production and industrial importance of some common plastics.

Content - Manufacturing processes and uses of poly ethylene, polypropylene, ABS, PVC and Polystyrene

Method of assessment - External theory exam. hrs - 8 Marks - 10

CO-5 Classify the production techniques for petrochemicals and products and scope of petrochemical industries.

LO-12 Describe manufacturing processes and industrial importance of some common petrochemicals.

Content - Manufacturing processes and uses of Methanol, Ethanol, chloromethane, carbon black, Aryl alkyl sulphonate, phenol ~~hrs~~ ~~marks~~

Method of assessment - External theory exam hrs - 8 marks - 10

LO-13 Identify primary alcohols and its testing in petrochemical industries.

Content - Identification of methanol and identification of ethanol.

Method of assessment - External Practical hrs - 6 marks - 10

LO-14 To prepare phenol based petrochemicals.

Content - Preparation of ~~phenyl~~ phenyl benzoate from phenol and preparation of tribromophenol from phenol.

Method of assessment - Internal Practical (Lab works) hrs - 6 marks - 10

LO-15 To understand the importance of petro-chemical industry.

Content - Introduction to polymer blends, Glass transition temperature, Major petrochemical industries and its products in India, Scope of petrochemical industries in India, present status and future prospect

Method of assessment - External theory exam ~~hrs~~ ~~marks~~ 8 marks - 10