

PETROCHEMICAL PRODUCTS

(Elective-IV)

Course Code: 15CH2120

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Course outcomes: On successful completion of the course, the student should be able to

CO1: Discuss past & present scenario of petrochemical industry in India & abroad

CO2: Explain the production techniques of different chemicals from ethane and acetylene.

CO3: Explain petrochemical feed stocks, production of hydrogen, synthesis gas and manufacture of chemicals from synthesis gas and methane.

CO4: Describe the production process of aromatics, benzene, toluene, Xylene from petroleum.

CO5: Explain polymerization and production of polymers and their recent production techniques.

UNIT-I (10-Lectures)

Past and present scenario in petro chemical industry in India and abroad.
Introduction to petro chemical Industry in India.

UNIT-II (10-Lectures)

Chemicals from ethane-ethylene and acetylene: oxidation of ethane, Production of ethylene manufacture of vinyl chloride monomer, vinyl acetate manufacture, ethanol from ethylene, Acetylene manufacture acetaldehyde from acetylene.

UNIT-III (10-Lectures)

Petrochemical feed stocks, synthesis gas and hydrogen production and chemicals from synthesis gas. Chemicals from methane, F-T synthesis.

UNIT-IV (10-Lectures)

Aromatic production from petroleum. Benzene, Toluene, Xylene, Production and applications.

UNIT-V (10-Lectures)

Petrochemicals products polymers and polymerization processes, recent trends in production and use of polymers such as LDPE, HDPE.

TEXTBOOKS:

1. Baskara Rao B.K, *“Modern Petroleum Refining Processes”*, 4th Edition, Oxford & IBH Pub.Co. Pvt. Ltd. 2002.
2. Baskara Rao B.K, *“A Text on Petrochemicals”*, Khanna Publishers, 2002.

REFERENCES:

1. Nelson W.L, *“Petroleum Refinery Engineering”*, McGraw Hill, New York, 1961.
2. Hengstebeck R.J, *“Petroleum Refining”*, McGraw Hill, New York 1959.
3. Steiner H, Pergamon, *“Introduction to petroleum Chemical Industry”*, London, 1961.
4. Sern V.Y, Pergamon, *“Gas phase oxidation”*, London, 1964.
5. Waddams A.L., *“Chemicals from Petroleum”*, 4th Rev Ed, John Murray Pub. 1978.
6. KNIEL, WINTER & STOCK *“Ethylene Derivatives”*, Marcell Dekker Publishers.
7. Sinha N K, *“Petroleum Refining and Petrochemical”*, Umesh Pub. 2003.
8. Sharma B.K., *“Fuels and Petroleum Processing”*, Goel Pub. House, 1998.