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**PETROCHEMICAL PRODUCTS**  
**(Elective-III)**

**Course Code: 13CH2117**

<b>L</b>	<b>P</b>	<b>C</b>
<b>4</b>	<b>0</b>	<b>3</b>

**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**

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

**UNIT-II**

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**

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

**UNIT-IV**

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

**UNIT-V**

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*", 4<sup>th</sup> 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*", 4<sup>th</sup> 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.

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