

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VII
ENVIRONMENTAL SCIENCE & TECHNOLOGY

Subject Name: Chemical Process Technology

Subject Code: 173501

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam(E)	University Exam(P)	Mid Sem Exam(Theory) (M)	Practical (Internal)
4	0	0	4	70	0	30	50

Sr No	Course Contents
1	Feed stock for building block ethylene, propylene, butanes & benzene, toluene, xylene manufactures Petroleum crude characteristics, Natural Gas, Crude distillation.
2	Manufacture of ethylene, propylene, butadiene, & the rest C ₄ components. Manufacture of aromatics, Manufacture of syn – gas from Natural gas, naphtha & coal
3	Process engineering aspects of manufacture of Methanol & methanol based chemicals such as acetic acid, dimethyl ether, dimethyl carbonate, etc. Ethylene oxide, glycols, vinyl chloride, vinyl acetate, α -olefins Propylene oxide, hydroformylation of propene to manufacture butyraldehyde, 2- ethyl hexanol Separation & utilization of C ₄ stream of steam naphtha cracker & FCC cracker (butadiene, isobutylene based ethers, maleic anhydride)
4	Processing engineering aspects of manufacture of aromatic compounds: terephthalic acid, phthalic anhydride, phenol, linear alkyl benzene, nitrobenzene aniline. Sulphuric Acid, Ammonia & Nitric acid, Urea, Chlor alkali (Caustic Soda & Soda ash) Phosphoric acid & its compounds, Process water, Air Separation

Reference Books:

1. Chemical Process Technology, J Moulijn, M Makkee and A Diepen, John Wiley & Sons, 2001
2. Introduction to Chemical Process Technology, P Berg & W Jong, Delft University Press, 1980
3. Introduction to Chemical Processes : Principles, Analysis & Synthesis, R M Murphy, Mc Graw Hill, 2007
4. Industrial Chemical Process Design, Douglas Erwin, Mc Graw Hill, 2002
5. Encyclopedia of Environmental Science & Technology ,Kirk & Othmer, John Wily & Sons, 5th Ed.,2007
6. Encyclopedia of Industrial Chemistry ,Ullmann, VCH, 1996
7. Industrial Organic Chemistry ,Weissermel K & Arpe H.J., Weinheim, 1978
8. From Hydrocarbons to Petrochemicals, Hatch L.F. & Matar S., Gulf Pub. Co., 1981
9. Chemical process Industries Shreve, Brink & Austin, Mc Graw Hill ,4th Ed., 1984