



Strategic Plan for Learning and Teaching Department of Chemical Engineering

Branch Name:	Chemical Engineering (CHE)	Session :	2018-2019
Subject Name:	Petrochemical Technology	Year:	4 th
Subject Code:	CHE 703B	Semester :	7 th

Course Objective:	<ul style="list-style-type: none"> With an objective to develop the knowledge to learn scientific and technological principles of organic synthesis and related unit processes Understand the role of Petrochemical engineer in unit processes used for organic synthesis and polymerization processes
Course Outcome:	<ul style="list-style-type: none"> Will acquire the ability to understand the unit processes in organic synthesis, variety of petrochemical feedstocks and products, process technologies for Fibers, Elastomers and resins Gets familiar with major polymerization processes on industrial scale

Teaching-Learning Plan:

Lecture Class No.	Reference to the WBUT Syllabus	Subject Topics to be discussed/ covered/ delivered	Text book / Referred book Sl.No.
1	Module 1	Petrochemical Industries & their feed stocks	2,3
2		Natural Gas processing.	
3		General idea of LNG, CNG, NGL, LPG and their generation.	
4		Production and Utilization of Synthesis gas	
5		Process of Synthesis gas production by steam reforming of Natural Gas	
6		Process of Synthesis gas production by steam reforming of Naphtha	
7		partial oxidation of Fuel Oil.	
8		Production of Methanol from Synthesis gas.	
9		Chemicals from Synthesis gas by Oxosynthesis.	
10		Production of liquid fuels from Synthesis gas by Fischer – Tropsch process	
11	Module 2	Name of Major Petrochemical products and their applications. First, Second and Third generation petrochemical products.	4,5
12		Production of Ethylene, Propylene, and	
13		Butadiene by Naphtha/Gas cracking.	
14		Petrochemicals based on Ethylene,	
15		Propylene and Butadiene : Like VCM, VAM,	
16		Ethylene Oxide, Ethylene Glycol,	
17		Ethanol Amines from Ethylene.	
18		Acrylonitrile, Isopropanol, Propylene oxide,	
19		Glycerine, Acrylic acid,	
20		Acrolein from Propylene.	
21	Module 3	Production, Separation and Utilization of Aromatics: - Catalytic Reformation of Naphtha and production of Xylenes.	1,3

22		Separation of Xylenes. Isomerization of Meta xylene.	
23		Pyrolysis Gazoline hydrogenation and separation of BTX aromatics.	
24		Production of Benzene, Toluene, Xylenes from BTX aromatics by distillation.	
25		Production of Benzene from Toluene. Uses of xylenes.	
26		Alkylation of Benzene. Production of Styrene, Cumene and Phenol.	
27		Production of Phthalic Anhydride etc.	
28		Synthetic Detergents: Classification of detergents.	
29		Production of Linear Alkyl Benzene (LAB) from Superior Kerosene and Benzene.	
30		Sulphonation of LAB for production of Synthetic Detergents. Additives for synthetic detergents.Hard and soft detergents	
31	Module 4	Plastomers, Elastomers and Synthetic fibres. : Various methods of polymerization and their mechanisms.	1,2
32		Production processes of LDPE, LLDPE and HDPE..	
33		Basic difference among the three and their applications	
34		Production of PVC and Polystyrene.	
35		Production of Polypropylene	
36		Production of SBR, PBR and Butyl rubber.	
37		Production of ABS plastics.	
38		Production of Polyamide (Nylon 6 and Nylon 6,6) ,	
39		Polyester and Acrylic fibres.	
40		Production of Phenol Formaldehyde resins.	

Recommended Text/ Reference Books:

Sl.No.	Name of Text/ Reference Book	Name of Author	Publisher & edition
1	Petrochemical processes:	Chauvel ,	Gulf Publishing
2	A Text on Petrochemicals:	B.K.B. Rao,	Khanna
3	The Petroleum chemicals Industry:	R. F. Goldstein and A. L. Waddams	
4	Advanced Petrochemicals:	Dr. G. N. Sarkar	Khanna Publishers
5	Introduction to Petrochemicals,	Sukumar Maity.	Oxford and IBH Publishing Co.

Course Co-ordinator / Faculty

Sl. No.	Name of the Course Co-ordinator / Faculty	Signature of Course coordinator / Faculty		Signature of HOD	
1	Dr.Pronoy Kumar Sinha				
2	Dr. Ardhendu Sekhar Giri				