Chemical process industries - Web course

COURSE OUTLINE

- The course covers the chemical process industries, which is the integral part of the chemical sciences and engineering. It is being taught at B.Sc., M.Sc. Industrial chemistry and B.Tech. Chemical engineering at almost all the institution of repute.
- It mainly covers the synthesis, industrial manufacture, flow diagram, properties and uses of industrial acids, fermentation products, industrial sodium compounds, halogens and chlorinated compounds and industrial solvents.

COURSE DETAIL

Module No.	Topics to be covered	Lecture Numbers
1	**Overview**	1 – 3
	Introduction, classification of chemical industries, material of construction, process instrumentation, safety, fire protection and waste disposal	
2	**Acid industries**	4 – 9
	Manufacture, history ,properties and uses of acetic acid, formic acid, benzoic acid, phthalic acid and oxalic acid	
3	**Fermentation industries**	10 – 18
	Introduction, culture development, inoculums preparation, nutrients for microorganism, toxic effects on culture. Manufacture, properties and uses of Industrial alcohol, absolute alcohol, butyl alcohol, glycerol, ethylene glycol and propylene glycol	
4	**Industrial sodium compounds**	19 – 23
	Manufacture, properties and uses of sodium thiosulfate, sodium bromide, sodium sulfate and sodium sulfite	
5	**Halogens and chlorinated compounds**	24 – 31

NP-TEL

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Chemical Engineering

Pre-requisites:

- The course is designed for B.Sc. and B.Tech. students, hence the student must have +2 level in chemical sciences.

Additional Reading:

1. Shreve's Chemical Process Industries by G. T. Austin
2. Riegel's Hand Book of Industrial Chemistry by James A Kent
3. Industrial Microbiology by A. H. Patel

Hyperlinks:

Author's home page: www.nkpatel.co.in

Coordinators:

Dr. Nirmal K. Patel
Chemical

	Introduction, manufacture, properties and uses of fluorine, bromine, iodine, chlorine, methyl chloride, dichloromethane, chloroform and carbon tetrachloride	
6	**Electro-thermal industries**	32 – 35
	Introduction, classification and advantages of electric furnace. Manufacture of silicon carbide, calcium carbide, graphite and carbon electrodes	
7	**Industrial solvents**	36 – 40
	Synthesis and properties of dimethylformamide (DMF),dimethyl sulfoxide (DMSO), tetrahydrofuran, dimethyl ether and diethyl ether	

References:

- Unit processes in organic synthesis, 5th edition, Tata Mcgraw-Hill, P H Groggins
- Shreve's chemical process industries, 5th edition, Mcgraw-Hill international edition, George T. Austin
- Industrial chemistry, Goel publishing house, B. K. Sharma
- Industrial microbiology by A. H. Patel
- Encyclopedia of industrial chemistry