

CH304 CHEMICAL TECHNOLOGY-I

L	T	P	Cr
3	0	0	3.0

Prerequisite(s): None

Introduction to Chemical Engineering: Unit operations and unit processes, functions of a chemical engineer in chemical and bio-chemical process industries. Study of the following chemical industries/processes involving process details, production trends, material and energy balances, flow sheets, engineering problems pertaining to materials of construction, waste regeneration/recycling, environmental and energy conservation measures.

Industrial and Fuel Gases: Oxygen, nitrogen, hydrogen, carbon dioxide, natural gas, LPG, producer gas, water gas, carbureted water gas, coke oven gas, synthesis gas.

Nitrogen Industries: Ammonia, nitric acid, ammonium sulphate, ammonium nitrate, urea, calcium ammonium nitrate.

Phosphorus Industries: Phosphorus, phosphoric acid, phosphatic fertilizers.

Mixed Fertilizer: N.P.K. fertilizers, diammonium hydrogen phosphate.

Chlor-Alkali Industries: Brine electrolysis, manufacture of caustic soda and chlorine in mercury cells, diaphragm cells, membrane cells, hydrochloric acid. Soda ash.

Sulphur Industries: Sulphur dioxide, sulphuric acid, oleum.

Ceremic Industries: Portland cement, Other Cement, Lime, Gypsum.

Glass Industries: Methods of manufacture of glass and special glasses.

Explosives, Propellants, and Toxic Chemical Agents: Types and characteristics of explosives, industrial explosives, propellants, rockets and Missiles, propellants for rockets.

Metallurgical Industries: Iron and steel.

Cryogenics in chemical industries

Text Books

1. Rao, M.G. and Sittig, M., *Dryden's Outlines of Chemical Technology-for the 21st century*, Affiliated East West Press (1998) 3rd ed.
2. Austin, G.T., *Shreve's Chemical Process Industries*, McGraw Hill (1998) 5th ed.

Reference Book

1. Faith, W.L., Keyes, D.B. and Clark, R.L., *Industrial Chemicals*, John Wiley (1980) 4th ed.