

Year & Sem: E2S2	Course Code:CH2202	Course Name: Chemical Technology	No. of Credits: 4	L 2	T&PS 2	P 0
UNIT I: Water: Sources of water, hardness, treatment for different end uses, municipal water conditioning, industrial waste water treatment. Sulphur and sulphuric acid: Sources of sulphur-sulphuric acid, different processes of manufacturing-contact process, DCDA process for sulphuric acid manufacture. Nitrogen industries: Manufacture of ammonia, nitric acid, urea and ammonium nitrate. Phosphorous and phosphoric acid industries: Methods for production of phosphorous and phosphoric acid, manufacture of super phosphate and triple super phosphate. UNIT II: Chlor-alkali industries: - Manufacture of soda ash, caustic soda and chlorine. Cement: Types of cement, manufacture of ordinary portland cement [opc], slag cement, other cements. Fuel and industrial gases: Production of water gas, producer gas and coke oven gas, production of acetylene, oxygen and nitrogen. METALLURGY: Manufacture of pig iron, cast iron, methods of making steel, open hearth process, production of aluminum by electrolytic process. UNIT III: Glass - Types and manufacture Ceramic Industries: basic raw materials, whit waxes, heavy clay products, refractories, enamels and enameled metals. Natural Products Processing: Production of pulp, paper and rayon, Manufacture of sugar, starch and starch derivatives. Coal & Coal Chemicals: Types of Coal, Different uses, distillation of coal, treatment of products, low and high temperature carbonization of coal, coal tar distillation, Gasification of coal and chemicals from coal. UNIT IV: Industrial Microbial Processes: Fermentation processes for the production of ethyl alcohol, citric acid and antibiotics, Edible Oils: Refining of edible oils and fats, fatty acids, Soaps and detergents. Petroleum: Origin, classification, composition of crude oil, production of crude oil, distillation of crude petroleum, refining-methods, uses of products. Petroleum Refining and Petrochemical feed stocks: Petroleum refining to produce naphtha, fuel hydrocarbons and lubricants. Processes for the production of petrochemical feed stocks: ethylene, propylene, butadiene, acetylene, synthetic gas, benzene, toluene and xylene. (Cracking, Catalytic reforming and separation of products) UNIT V: Plastics and Polymers: Production of thermoplastic and thermosetting resins such as polyethylene (HDPE, LDPE), polypropylene, phenolic resins and epoxy resins. Polymers and their applications in engineering practice. (PVC, PTFE, Polystyrene) Fibre Forming and Electrometric Polymers: Synthetic fibres: polyamides, polyesters and acrylics from monomers. Processes for the production of natural and synthetic rubbers. References/Text Books: 1. "Dryden's Outlines of Chemical Technology" by M.Gopala Rao & Marshall Sitting (Editors). Affiliated East West Press Pvt. Ltd. 2. "Shreve's Chemical Process Industries" by G.T.Austin, 5th edition, TATA McGraw- Hill, chemical engineering series. 3. "Encyclopedia of Chemical Technology" by R.E.Kirk & D.F.Othmer (Editors), Inter-science Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.						