BSIC-SN101
[w.e.f. 2020-21 Admitted Batch]

Dr.B.R.AMBEDKAR UNIVERSITY, SRIKAKULAM

(CBCS UG Proposed Syllabus)

Subject: Industrial Chemistry

I B.Sc - SEMESTER- I: INDUSTRIAL CHEMISTRY SYLLABUS

w.e.f. 2020-21

Paper- I CHEMICAL PROCESS INDUSTRIES-1

Total hours of teaching 60hrs @ 4 hrs per week

UNIT- I **12h**

Water treatment:- Source of water, quality of natural water, water quality parameters, hardness of water causes, conditions of water, permutite, ion-exchange process, treatment of water for municipal purpose, desalting of sea water, composition, properties and quality of deposits in boilers and heat exchangers, treatment of boiler water, corrosion and treatment of heat power equipments, industrial water treatment, water analysis, BOD,COD, determination of hardness.

Sewage and Sewage treatment:-Municipal waste water, sewage and its compositions, aerobic process and anaerobic processes for the treatment of sewage bacteria, methods of sewage treatment – aerobic oxidation plants.

Industrial wastes and treatment process:- Types of industrial wastes, nature, effect and treatment of chemical wastes from some important industries.

UNIT- II 12h

Corrosion:-Introduction, economic aspects of corrosion, types of corrosion chemical corrosion and electrochemical corrosion, theories of chemical corrosion and electrochemical corrosion, factors effecting chemical corrosion, atmospheric corrosion, water corrosion, microbiological corrosion, prevention of corrosion.

Protective coating :-Introduction, types of metal coating, coating processes, galvanizing, tinning, metal cladding, electroplating, immersion plating, cementation, metal spraying.

UNIT – III **12h**

Glass: :- Rawmaterials, methods of manufacture (pot furnace, tanks furnace, regenerative tank furnace), shaping, various glasses- coloured glass, safety glass, fibre glass, pyrex glass, photosensitive glass, glass wool.

Ceramics:- Introduction and properties of ceramics, basic raw materials, formation, types and properties of clay, manufacturing processes, glazing, porcelain, china ware- raw materials and manufacture.

Cement:-Types of cements, raw materials, manufacture of cement dry, wet processes, setting of cement, properties of cement, physico – chemical principles involved , fuel burning devises – mortar and concrete.

UNIT- IV **12h**

Paints:-Classification, manufacture of paints, emulsion paints, heat resistant paints, varnishes, enamels, solvents and thinners.

Paper and pulp:- manufacture of various pulps, beating, refining, filling, sizing and colouring, manufacture of paper and calendaring.

UNIT – V 12 h

Plastics:- Introduction, classification and properties of plastics, condensation polymerisation, addition polymerisation, cross linked polymerisation, co-polymerisation, raw materials for plastic industries, moulding of plastics, Bakelite, poly ethylene, polystyrene, celluloose nitrate, cellulose acetate, urea formaldehyde resin, PVC.

Rubber:- Types of rubber, drawbacks of raw rubber, vulcanization of rubber, synthetic rubbers, Buna –s rubber, neoprene rubber, butyl rubber, polyurethane rubber, sponge rubber, foam rubber, rubber cement, thermocole, application of rubber.

Books for Reference:

Text Book : Industrial Chemistry (including Chemical Engineering)by B.K.Sharma, Goel Publishing house, Meerut.