CHEMICAL TECHNOLOGY

Course Code: 13CH1120

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Course Educational Objectives:

This course introduces the student the following aspects.

- Methods of manufacturing various chemicals in the chemical process industry.
- Know the unit operations and unit processes involved in the manufacture of chemicals.
- Engineering problems involved in the manufacture of various chemicals.

Course Outcomes:

After completion of this course the student would be able to

- Draw the qualitative flow sheets for the manufacturing process of the various chemicals involved.
- Give the process design information for a particular manufacturing process.

UNIT-I (12 Lectures)

Manufacturing of Soda ash, caustic soda and chlorine, Glass: manufacture of special glasses

INDUSTRIAL GASES:

carbon dioxide, hydrogen and oxygen – products of water gas, producer gas. Nitrogen industries: synthetic ammonia, urea, nitric acid (ammonium nitrate), ammonium chloride, ammonium phosphate and complex fertilizers

UNIT-II (12 Lectures)

Sulphur and sulphuric acid, manufacture of sulphuric acids, hydrochloric acid and some other chemicals like –Aluminum sulphate and alum, Cement manufacture, magnesium compounds.

UNIT-III (12 Lectures)

Manufacture of phenols, formaldehyde, vinyl chloride and vinyl acetate, manufacture of phenol- formaldehyde resin and polyvinyl chloride polymer, SBR.

Oils: Definition, constitution, extraction and expression of vegetable oils, refining and hydrogenation of oils.

UNIT-IV (12 Lectures)

Soaps and detergents: Definitions, continuous process for the production of fatty acids, glycerin and soap, production of detergents.

UNIT-V (12 Lectures)

Pulp and paper industry: methods of pulping, production of sulphate and sulphite Pulp, production of paper –wet process

TEXT BOOKS:

1. Austin. G.T.,"*Shreve's Chemical Process Industries*", McGraw-Hill, 5th Edition,1985.
2. Gopal Rao M. and Sittig M., "*Dryden's Outlines of Chemical Technology*", 3rd Edition, East–West Press Pvt Ltd., New Delhi, 2000.

REFERENCE:

Davis K.H., Berner F.S., and Bhatia S.C., "*Hand book of Industrial Chemistry Vol 1and II*", CBS publishers, India, 2004.