COURSE TITLE	**CHEMICAL PROCESS TECHNOLOGY**
COURSE CODE	**01CH1608**
COURSE CREDITS	**3**

Objective:

1 To impart knowledge on various aspects of production engineering and make the student understand the practical methods of production in a chemical factory.

Course Outcomes: After completion of this course, student will be able to:

1 Classify the major unit operations and processes involved in manufacturing industries.

2 Illustrate the manufacturing processes of organic and inorganic chemical industries.

3 Understand the different industrial gases and fertilizer industries involved in chemical industries.

4 Explain the process flow sheet and end uses of cellulosic material in different application.

Pre-requisite of course: Basic knowledge of unit operation and unit process.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Chloro-alkali, Sulfuric Acid and Cement Industries** Process description and major engineering problems in the manufacture of: Soda ash, Caustic Soda, Calcium Hypochlorite, Sulfuric Acid, Ceramic, Glass, Cement.	8
2	**Industrial Gases** Manufacture of Carbon-Dioxide; Hydrogen; Oxygen and Nitrogen, Acetylene; Water gas, Producer gas and manufacture of Natural gas, Sulphur Dioxide	8
3	**Fertilizer Industries** Manufacture of nitric acid and urea; manufacture of phosphorus and phosphoric acid, manufacture of super phosphate and triple super phosphate, manufacture of potassium chloride, Potassium Sulphate	10
4	**Cellulose, Sugar and Oil Production Industries** Production of pulp–manufacture of paper and manufacture of viscous rayon, manufacture of sugar and starch, Industrial Alcohol, Antibiotic, Refining of edible oils and fats; manufacture of soaps and detergents, bio-degradability of surfactants. Introduction to Dyes and intermediates	10
Total Hours		**36**

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Textbook :

1 Dryden's Outlines of Chemical Technology, Rao G., Sittig M.,, East West Press, India,, 2010

2 A Text Book of Chemical Technology, Pandey G. N, S Chand, 2018

References:

1 Shreve's Chemical Process Industries, Shreve's Chemical Process Industries, Austin G.T.,, McGraw Hill, USA,, 2012

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
10.00	20.00	25.00	25.00	10.00	10.00

Instructional Method:

1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.

3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

1 https://nptel.ac.in/courses/103107082

2 https://nptel.ac.in/courses/103106108

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