

Course title: SEC- Chemical Technology and Society <i>w.e.f. the session 2023-24 and onwards</i>	
Class: B.Sc. Pt.-II / Semester-III	Course code: BCH-S-301
Lectures: 30	Credits: 04
MM:70	Exam Hrs:03

**NOTE:** The question paper shall consist of Two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer (about 150 words) type questions of SIX marks each and student shall be required to attempt any five questions. Sec.-B shall contain 08 descriptive type questions of TEN marks each and student shall be required to attempt any four questions. Both sections shall have questions from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

### Course Contents:

#### Chemical Technology

Basic principles of distillation, solvent extraction, solid-liquid leaching and liquid-liquid extraction, separation by absorption and adsorption. An introduction into the scope of different types of equipment needed in chemical technology, including reactors, distillation columns, extruders, pumps, mills, emulgators. Scaling up operations in chemical industry. Introduction to clean technology.

#### Society

Exploration of societal and technological issues from a chemical perspective. Chemical and scientific literacy as a means to better understand topics like air and water (and the trace materials found in them that are referred to as pollutants); energy from natural sources (i.e. solar and renewable forms), from fossil fuels and from nuclear fission; materials like plastics and polymers and their natural analogues. Effect of pollution on society.

#### Reference Book:

John W. Hill, Terry W. McCreary & Doris K. Kolb, *Chemistry for changing times* 13<sup>th</sup> Ed.

#### Course Objectives:

1. To deliver the knowledge on the various separation techniques viz. distillation, solvent extraction, solid-liquid leaching and liquid-liquid extraction, separation by absorption, adsorption and their uses.
2. To impart the knowledge on the use of various clean technologies.
3. To provide brief knowledge to students about some equipment's used in industries.
4. To develop scientific literacy among the students.
5. To impart the knowledge about the various kind of pollution and their adverse effects on the society.
6. To provide an understanding of the importance of the renewable energy sources.

#### Course Outcomes (COs):

CO1. Students shall be able to understand the different type of separation techniques and their uses so that they will be able to choose the appropriate technique according to their applications.

CO2. The students will understand the working principles of various equipments used in the chemical industries including reactors, distillation columns, extruders, pumps, mills.

CO3. Students when approaching the chemical industry will be able to know the seriousness of handling these equipments.

CO4. Awareness about scientific literacy will be there among students.

CO5. The importance of the renewable energy sources in the current time will also be understood by the students so that they can be able to aware the society about this fold of energy.

CO6. Awareness to minimize the pollution and its causes can be distributed into the society by the students after studying the course.

**Mapping of course Outcomes (COs) with program outcomes (POs)**

Course Outcomes/Program outcomes	1	2	3	4	5	6	7	8
CO1	X			X			X	X
CO2	X			X				X
CO3				X			X	X
CO4				X				X
CO5				X				
CO6				X				

Note: put 'X' in relevant column of mapping