



# ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

## B. Tech. Scheme of Examination & Syllabus 2024-25

### ENGINEERING, SCIENCES & HUMANITIES

FIRST SEMESTER (For Computer Engineering, Cyber Security, Data Sciences, Information Technology & Artificial Intelligence students)

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation	
						CA	ESE
	Engineering Chemistry and Environmental Science	2	0		2	20	30

Course Objectives	Course Outcomes
<p>This course is intended</p> <ol style="list-style-type: none"> <li>To acquaint the students with the basic phenomenon, concepts, knowledge and understanding of the fundamental principles of chemistry.</li> <li>To develop necessary skills and abilities to succeed in engineering education, research, Industry, environment and social context.</li> </ol>	<p>Students will be able to</p> <ul style="list-style-type: none"> <li>Develop innovative ideas for use of advanced materials in sustainable development.</li> <li>Apply the principles of green Chemistry for sustainable development</li> <li>Understand the environmental impacts of e-waste &amp; apply concepts of e-waste management.</li> </ul>

#### Unit I Advanced Materials -

[8 Hrs]

Introduction-Need for Development

Biodegradable polymers- PLA, PCL - Synthesis, Properties and Applications,

Conducting Polymers- Polypyrrole, PANI Synthesis, Properties and Applications.

Liquid Crystal Polymers- Types, Properties and Applications.

[8 Hrs]

#### Unit II Green Chemistry

Green Chemistry- Introduction, Principles of Green Chemistry with example, Green Reagents- Super Critical Fluid ( $\text{CO}_2$ )- Properties and Applications, Green Building-Introduction, Components, Green Crackers- Introduction, Types, Advantages, Bio Catalysis- Definition and examples. Carbon Credit, Carbon Sequestration, Carbon Trade exchange platform.

[8 Hrs]

#### Unit III E-waste Management

Introduction. E- Waste; composition and generation. E-waste pollutants, E waste hazardous properties, Effects of pollutant (E-waste) on human health and surrounding environment, Basic principles of E waste management, Component of E waste management- Domestic e-waste disposal, E-waste Control measures - Reduction of waste at source

#### Text Books

S.N	Title	Authors	Edition	Publisher
1	Text Book of Engineering Chemistry	S.S. Dara,		S. Chand and Company Ltd. New Delhi.
2	Textbook of Engineering Chemistry	P.C. Jain and Monica Jain		Dhanpat Rai and Sons, New Delhi.
3	Materials Chemistry	A.V. Bharati and Walekar,		Tech Max Publications, Pune.
4	E-waste Recycling and Management	Anish Khan, Inamuddin, Abdullah M. Ansari		Springer

		May 2024	2	Applicable for 2024-25
Chairman - BoS	Dean - Academics	Date of Release	Version	