

Subject Code:2SC1000423

Subject Title: Green Chemistry

Course Objective:

Generally awareness with the following areas in chemistry: analysis of Medicinal Chemistry. Opportunities for student and faculty to interact with pharmaceutical industry. The fundamental medicinal chemistry skills to work and Pharmaceutical industrial skills to work effectively in the different fields of chemistry.

Teaching scheme (hours) per week		Credit		Theory Examination		Practical Examination		Total
Theory	Practical	Theory	Practical	University Assessment	Cont. Assessment	University Assessment	Cont. Assessment	
2	---	2	---	35	15	---	---	50

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	UNIT : I Basics of Green Chemistry ☐ The need for greenchemistry ☐ Eco-efficiency- environmental protectionlaws ☐ Challenges --pollution control and pollution ☐ Green methods, green products, recycling ofwaste ☐ Twelve principles of greenchemistry ☐ Inception of green chemistry--awards for greenchemistry ☐ International organizations promoting greenchemistry.	15	50
2	Designing Green Synthesis ☐ Choice of starting materials, choice of reagents, choice of catalysts ☐ Bio catalysts, polymer supported catalysts, choice ofsolvents ☐ Synthesis involving basic principles of greenchemistry ☐ Examples –adipic acid, catechol, methyl methacrylate, urethane, aromatic amines (4-aminodiphenylamine), benzyl bromide, acetaldehyde,citral, ☐ ibuprofen, paracetamol ☐ Ultrasound assisted reactions: Esterification, saponification, substitution reactions, Alkylation, oxidation, reduction, coupling reaction, Cannizaro reaction, Strecker synthesis, ☐ Reformatsky reaction. ☐ Concept of Phase Transfer Catalyst (PTC)	15	50

Course Outcome:

- ❖ Have solid foundations in the fundamentals and purpose of current chemical and scientifictheories.
- ❖ Are capable to design, carry out, record and analyze the results of chemical experiments.
- ❖ Are skillful in problems solving, significant thinking and analyticalreasoning.

Reference Books:

1. V.K. Ahluwalia & M.R. Kidwai: New Trends in Green Chemistry, Anamalaya Publishers (2005).
2. P.T. Anastas& J.K. Warner: Oxford Green Chemistry- Theory and Practical, University Press (1998).

3. A.S. Matlack: Introduction to Green Chemistry, Marcel Dekker (2001).
4. M.C. Cann & M.E. Connely: Real-World cases in Green Chemistry, American Chemical Society, Washington (2000).
5. M.A. Ryan & M. Tinnes, Introduction to Green Chemistry, American Chemical Society, Washington (2002).

e-Resource:

1. www.google.com
2. <http://onlinelibrary.wiley.com/>
3. <https://en.wikipedia.org/wiki>