



HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

Program Name : **B. Sc. Chemistry** Semester : **IV**

PROGRAM CODE : SCIUG102

COURSE CODE: SC23SECCE406

Type of course : Skill Enhancement course SEC

Name of course : Green chemistry

Effective from June 2023 Under NEP 2020

Total Credits : 02 Teaching Hours per Week: 02 Teaching hours per semester: 30	Theory Mark: 50	External 25 Marks
		Internal 25 Marks

Course Objectives:

1. To understand importance of taking precautions in study of Chemical reactions in greener way.
2. To have knowledge of lab wastage and save the chemicals.
3. To know about designing green synthesis .

Course Outcome:

1. Students will gain a comprehensive knowledge and skills in assessing laboratory reagents and use of them in greener ways.
2. To understand the importance of cost of chemicals, environment protection and safety in performing green experiments.
3. Students will learn how to use chemicals in greener ways and makngichemical laboratories.

Unit	Topic	Credit	Hr
1	BASICS OF GREEN CHEMISTRY: Introduction of green Chemistry, Twelve principles of green chemistry. Green products, recycling of waste, Green Fuels methods:Natural gas reforming Methods. Coal gasification Process. Hydrogen gas, Biomass gasification, Eco-efficiency-environmental protection laws. Inception of green chemistry-awards for green chemistry.International organizations promoting green chemistry.	1	15

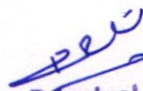


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2	Designing Green Synthesis Choice of starting materials, choice of reagents, choice of catalysts. Bio catalysts, polymer supported catalysts, choice of solvents. Synthesis involving basic principles of green chemistry. Green approaches in synthesizing of Nanomaterials (ZnO, TiO ₂) for environment. Examples – Adipic acid, Catechol, Methyl methacrylate, Urethane, Aromatic amines (4-aminodiphenylamine), Benzyl bromide, Acetaldehyde, Citral, Ibuprofen, Paracetamol, Aspirin.	1	15
Books Recommended: 1. V.K.Ahluwalia & M.R.Kidwai : New Trends in Green Chemistry, Anamalaya Publishers (2005). 2. V.Kumar, An Introduction to Green Chemistry, Vishal Publishing Co.Jalandhar, 2007. 3. Sanghi A Shrivastav Green Chemistry, Krihna publications, 2016 4. Chemistry of Fossil Fuels and fuels, Harold H Schobert First published 2013 ISBN 978-0-521-11400-4 Further Reading: Suggestive Digital Platforms Web Links: 1. http://chemcollective.org/vlabs 2. https://www.vlab.co.in/broad-area-chemical-sciences 3. https://wp.labster.com/chemistry-virtual-labs/ 4. https://www.youtube.com/watch?v=O_nyEj_hZzg			




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