



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Science
Department of Chemistry
Generic Elective Courses
Choice Based Credit System(CBCS)

COURSE CODE	CATEGORY	COURSENAME	L	T	P	CREDITS	TEACHING&EVALUATION SCHEME				
							THEORY			PRACTICAL	
							ENDSEM University Exam	TwoTerm Exam	Teachers Assessment*	ENDSEM University Exam	Teachers Assessment*
GUCH104	UG	Chemistry Applied to Industries	3	0	0	3	60	20	20	00	00

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; Q/A – Quiz/Assignment/Attendance, MST Mid Semester Test.

*Teacher Assessment shall be based on following components: Quiz/Assignment/ Project/Participation in class (Given that no component shall be exceed 10 Marks)

Course Objective:

- To understand some basic concepts of Industrial application.
- To identify & analyze appropriate Environmental Chemical Analysis.
- To understand industrial application of chemistry in a more appropriate manner.


Course Outcomes: -


After successful completion of this course, the students will be able to:


- Acquire fundamental knowledge of Industrial Organic and Inorganic Chemistry.
- Analyze and discuss challenges encountered in various stages of industrial chemical applications.
- Understand the basics of chemical safety and proper handling procedures.

UNIT I: Introduction to Industrial Chemistry

Importance of chemistry in industrial development, Classification of industries based on chemical processes, Overview of raw materials and their sources, Basic concepts of chemical manufacturing.


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UNIT II: Environmental Chemical Analysis:

Sampling Techniques in Environmental Analysis, Water and Wastewater Analysis, Industrial waste management techniques, Green chemistry approaches for pollution control.

UNIT III: Quality Control and Industrial Applications

Analytical Techniques in Industry: Spectroscopy, chromatography, titration, and other QC techniques and their industrial applications.

UNIT IV: Industrial Organic and Inorganic Chemistry

Engineering materials and their applications: Ceramics and glasses, Cement and Refractories, Composites and Novel Materials.


Petroleum and Petrochemicals, Polymers and Plastics, Dyes, Paints and Coatings,


UNIT V: Chemical Safety and Ethical Handling of Chemicals:


Chemical Safety and Hazard Management: Chemical explosives, Classification of hazards chemicals, storage, transportation, handling, risk assessments, challenges/solutions. Safe working procedure and protective environment, PPE and Material safety data sheet, fire and explosion safety.

TEXTBOOK AND READING LIST

1. Skoog, West, and Harris: Analytical Chemistry: an Introduction Saunders, College Publishing.
2. Skoog, Holler and Nieman: Principles of Instrumental Analysis, Brooks/Cole-Thompson Learning Publishers.
3. Vogel's Quantitative Chemical Analysis.


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4. Kenneth A. Robinson: Contemporary Instrumental Analysis, Culinary and Hospitality Industry Publications Services
5. W.D. Callister, Jr.: Materials Science & Engineering: An Introduction.
6. K.G. Budinski, M.K. Budinski: Engineering Materials: Properties & Selection.
7. D.R. Askeland: The Science and Engineering of Materials.
8. V. Raghavan: Materials Science and Engineering.
9. J.P. Mukhlyonov: Fundamentals of Chemical Technology.
10. M.G. Rao, M. Sittig: Dryden's outline of Chemicals Technology.
11. Emil Raymond Riegel: Industrial Chemistry.
12. Frank Hall Thorp: Outlines of Industrial Chemistry.
13. Madan, R.L., *Organic Chemistry*, McGraw-Hill Education.
14. Smith, Janice Gorzynski, *Organic Chemistry 4e*, McGraw-Hill Education.

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