Shri Vaishnav Vidyapeeth Vishwavidyalaya

Department of Chemistry

Generic Elective Course

Choice Based Credit System (CBCS)

COURSE CODE	CATEGORY	COURSE NAME	L	T	P	CREDITS	TEACHING & EVALUATION SCHEME				
							THEORY			PRACTICAL	
							END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*
GPCH102	PG	CONTEMPORARY METHODS OF ANALYSIS	3	0	0	3	60	20	20	00	00

Legends: L - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:

1. To integrate the knowledge of different equipments, analytical and statistical methods used in chemical science.
2. To understand the advancement in properties of materials at nano-scale range.
3. To understand the impact of chemical technology on society.

Course Outcomes:

1. Students will be able to learn different methods used in chemical analysis.
2. Students will be able to acquire the knowledge of fundamentals of nanoscience and nano technology.
3. Students will be able to understand the principle of GC-MS, HPLC, CV, TGA and SEM.
4. Students will be able to learn the statistical methods of handling the data.
5. Students will be able to understand the relation between chemical technologies and society.

Syllabus:

Unit I: Analytical Aspects of Assorted Materials

Analysis of dairy products, food products and petrochemicals. Body Fluid analysis: Analysis of blood. Urine analysis.

Unit II: Elementary Concepts of Nanoscience and Technology

Introduction to nanoscience and nanotechnology, Properties of nanomaterials, role of size in nanomaterials, Advanced applications of nanomaterials , nanotechnology enable devices.

Unit III: Equipment Design and Applications

Instrumental methods and applications of GC, HPLC, Colorimetry, Conductometry.

Unit IV: Data Analysis in Chemistry

Concepts of statistical Population and sample. Advantages of sampling, Random (Probability) and non random (Non probability) sampling. Reliability of analytical data, mean, median and mode, standard deviation, Correlation and Regression analysis.

Chairperson Board of Studies	Chairperson Faculty of Studies	Controller of Examinations SVVV, Indore	Registrar SVVV, Indore

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Unit V: Chemical Technology and Society

Introduction to clean technology, Chemical and scientific literacy to develop a better understanding of consumption of natural resources and technological and sustainable development of non conventional resources.

Text Books:

1. Analytical Chemistry: Gary D. Christian (Wiley,India).
2. Instrumental Methods of Analysis: Willard, Merrit, Dean, Settle (CBS Publishers, Delhi, 1986)
3. Instrumental Methods of Chemical Analysis: Braun (Tata McGraw-Hill)
4. Basic Concepts in Analytical Chemistry: S. M. Khopkar (New Age International Publication)
5. Chemistry of nanomaterials: Synthesis, properties and applications by CNR Rao et.al.
6. Nanochemistry: A Chemical Approach to Nanomaterials, Royal Society of Chemistry, Cambridge UK.
7. Fundamentals of Biostatistics: N.K. Dutta (Kanishka Publishers).
8. Analytical Chemistry: Gurdeep R. Chatwal (Himalaya Publishing House).

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