Semester-Wise Teaching Plan for Academic Session: 2025-26 (Odd Semesters)

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Class/Semester	Title & Code of The Paper Allotted (Credit)	Method of Teaching	Teaching Material	Unit	Topic	Period/ Hours Required	Details of the Contents	Remarks / Books
UG: Sem I (Odd)	GENERAL CHEMISTRY-I (CHMMI-011) (4 Cr.)	Lecture, Discussion, Problem-solving	Textbook, Diagrams, Models	Unit IV	Chemistry of hydrocarbons	12	Details: Introduction to the chemistry of alkane, alkene and alkyne	**Textbooks:** Finar, I. L. Organic Chemistry; Clayden, Greeves, Warren (Organic Chemistry).
UG: Sem I (Odd)	CHEMISTRY IN EVERYDAY LIFE (CHMMU-011) (3 Cr.)	Lecture, PPT, Class Demos	Household samples, Charts	Unit III	Pharmaceutical Compounds & Chemotherapy.	12	Details: Overview of drug categories and their mechanisms of action for common ailments.	**Textbooks:** Singh K. (Chemistry in Daily Life); Drugs and Pharmaceutical Sciences Series.
UG: Sem I (Odd)	HEALTH & WELLNESS (HLWVA-011) (2 Cr.)	Lecture, Discussion, Video aids	Food charts, Handouts	Unit III	Utilization of Food and Economics of Food	4	Details: Specific nutritional requirements and	**Textbooks:** Roday S., Food Science and Nutrition;

							challenges for different life stages.	SWAYAM; IGNOU.
UG: Sem I (Odd)	SKILL ENHANCEMENT COURSE (CHMSK-011) (3 Cr.)	Practical, Demonstration	Food samples, Chemicals, Lab equipment, Manuals	All	Lab Safety & Basic Skills:	9	Details: Foundational lab safety protocols and essential hands-on skills required in a chemistry laboratory.	**Textbooks:** Patrick, G. L. Introduction to Medicinal Chemistry; Jain, P.C. & Jain, M. Engineering Chemistry.

UG: Semester III (Odd Semester)

Class/Semester	Title & Code of The Paper Allotted (Credit)	Method of Teaching	Teaching Material	Unit	Topic	Period/ Hours Required	Details of the Contents	Remarks / Books
UG: Sem III (Odd)	ORGANIC CHEMISTRY-I (CHMMJ-032) (4 Cr.)	Lecture, Discussion, Problem-solving	Textbook, Charts, Molecular models	Unit III	Carbonyl compounds (Aldehydes and Ketones)	5	Details: Synthesis methods, nucleophilic addition reactions	**Textbooks:** Finar, I. L. Organic Chemistry; Clayden, Greeves, Warren (Organic Chemistry).
UG: Sem III (Odd)	ORGANIC CHEMISTRY-I (CHMMJ-032) (4 Cr.)	Lecture, Discussion, Problem-solving	Textbook, Charts, Molecular models	Unit IV	Carboxylic Acids and their Derivatives	6	Details: Synthetic routes, acidity, and characteristic	**Textbooks:** Finar, I. L. Organic Chemistry;

							reactions of carboxylic acids.	Clayden, Greeves, Warren (Organic Chemistry).
UG: Sem III (Odd)	GENERAL CHEMISTRY-III (CHMMI-031) (3 Cr.)	Lecture, Discussion, Problem-solving	Textbook, Charts, Examples	Unit IV	Active methylene compounds & organometallic compounds	7	Details: Synthetic routes, physical characteristics of active methylene compounds	**Textbooks:** Finar, I. L. Organic Chemistry (Volume 2); McMurry, J.E. Organic Chemistry.
UG: Sem III (Odd)	CHEMISTRY IN EVERYDAY LIFE (CHMMU-031) (3 Cr.)	Lecture, PPT, Class Demos	Household samples, Charts	Unit III	Pharmaceutical Compounds & Chemotherapy.	12	Details: Overview of drug categories and their mechanisms of action for common ailments.	**Textbooks:** Singh K. (Chemistry in Daily Life); Drugs and Pharmaceutical Sciences Series.

UG: Semester V (Odd Semester)

Class/Semester	Title & Code of The Paper Allotted (Credit)	Method of Teaching	Teaching Material	Unit	Topic	Period/ Hours Required	Details of the Contents	Remarks / Books
UG: Sem V (Odd)	ORGANIC CHEMISTRY-III (CHMMJ-052) (4 Cr.)	Lecture, PPT, Discussion	Textbook, Diagrams, Research Papers	Unit I	Spectroscopy: UV-Visible IR spectroscopy	6	Details: Principles, spectral interpretation for structure	**Textbooks:** Silverstein, R. M., Spectrometric Identification of Organic

							elucidation, application of empirical rules.	Compounds; Pavia, D. L., Introduction to Spectroscopy.
UG: Sem V (Odd)	ORGANIC CHEMISTRY-III (CHMMJ-052) (4 Cr.)	Lecture, PPT, Discussion	Textbook, Diagrams, Research Papers	Unit I	Mass Spectrometry	8	Details: Principles of MS	**Textbooks:** Pavia, D. L., Introduction to Spectroscopy.
UG: Sem V (Odd)	ORGANIC CHEMISTRY-III (CHMMJ-052) (4 Cr.)	Lecture, PPT, Discussion	Textbook, Diagrams, Research Papers	Unit VII	Nucleic Acids: Basic components	10	Details: Structure and function of nucleic acid	**Textbooks:** Finar, I. L. Organic Chemistry;
UG: Sem V (Odd)	PHYSICAL CHEMISTRY III (CHMMJ-053) (4 Cr.)	Lecture, Problem-solving	Textbook, Charts	Unit IV (B)	Spectroscopy	7	Details: ESR and Electronic Spectroscopy	**Textbooks:** Pavia, D. L., Introduction to Spectroscopy.
UG: Sem V (Odd)	Inorganic Laboratory	Practical, Demonstration		Unit I & II	Inorganic estimation & preparation	10	Gravimetric estimation & crystal preparation	**Textbook:** Gurdeep, R. Advanced Practical Inorganic Chemistry,

PG: Semester I (Odd Semester)

Class/Semester	Title & Code of The Paper Allotted (Credit)	Method of Teaching	Teaching Material	Unit	Topic	Period/ Hours Required	Details of the Contents	Remarks / Books
PG: Sem I (Odd)	ORGANIC CHEMISTRY -	Lecture, PPT, Discussion	Textbook, Research Papers	Unit III	Pericyclic Reactions: Introduction,	10	Details: Theoretical basis and	**Textbooks:** Clayden, Greeves,

	I (PCHMC-102) (4 Cr.)				classification and stereochemistry (Woodward-Hoffmann rules for electrocyclic, cycloaddition and sigmatropic reactions).		stereochemical outcomes of pericyclic reactions.	Warren (Organic Chemistry)
PG: Sem I (Odd)	ORGANIC CHEMISTRY - I (PCHMC-102) (4 Cr.)	Lecture, PPT, Discussion	Textbook, Research Papers	Unit IV	Photochemistry	10	Details: Principles of light absorption and emission, quantum efficiency, and energy transfer processes.	**Textbooks:** Clayden, Greeves, Warren; K. K. Rohatgi-Mukherjee, Fundamentals of Photochemistry.
PG: Sem I (Odd)	PRACTICAL CHEMISTRY - I (PCHMC-104) (2 Cr.)	Practical Demonstration, Hands-on Lab Work	Lab equipment, Chemicals, Manuals	CHY LAB I (Inorganic Lab) or CHY LAB II (Organic Lab)	Inorganic Preparations: (Example from PCHMC-104 Lab I) Potassium tris(oxalate)ferrate (III) $K_3[Fe(C_2O_4)_3]$.	6-8	Details: Lab synthesis and characterization of coordination compounds.	**Textbooks:** Vogel's Textbook of Quantitative Chemical Analysis; Inorganic Synthesis.
PG: Sem I (Odd)	GREEN AND SUSTAINABLE CHEMISTRY (PCHMG-105) (4 Cr.)	Lecture, Discussion, Case Studies	PPT, Research Articles, Industry Reports	Unit I	Introduction to Green Chemistry: Twelve principles of green chemistry,	4	Details: Detailed discussion of each principle, quantitative assessment	**Textbooks:** Anastas & Warner, Oxford Green Theory and Practical;

					Atom Economy: calculation and importance with examples.		using atom economy.	Saikia and Sarma, A Textbook on Green Chemistry.