Preview file of Teaching Plan Academic Session: 2025-26
Department of Chemistry
Jagannath Barooah University, Jorhat

Name of the Teacher: Mrs Akhtara Hussain Kalita
Semester: ODD

Class/ Sem	Title & Code of The Paper Allotted (Credit)	Method of Teaching	Teaching Material	Unit	Topic	Period/ Hours	Details of the Contents	Remarks / Books
Sem I, UG	General Chemistry–I (CHMMJ-011) (4 Cr.)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	Unit III	Basics of Organic Chemistry	10	Nomenclature, Hybridization, Electronic displacements, Bond fission, Electrophiles, Nucleophiles, Reaction Intermediates, Typpes of organic reactions, Aromaticity	Morrison & Boyd, I. L. Finar (Organic Chemistry, vol I)
Sem I, UG	General Chemistry–I (CHMMI-011) (4 Cr.)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	III	Basics of Organic Chemistry	10	Nomenclature, Hybridization, Electronic displacements, Bond fission, Electrophiles, Nucleophiles, Reaction Intermediates, Typpes of organic reactions, Aromaticity	Morrison & Boyd, I. L. Finar (Organic Chemistry, vol I)
Sem III, UG	Organic Chemistry - III (CHMMJ-032) (4)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	II	Carbonyl Compounds, Active methylene Compounds, Organometal	16	Preparations and reactions of Carbonyl compounds, 19 name reactions like Wittig, Aldol etc, Keto-enol tautomerism, Preparation and synthetic	Morrison & Boyd, I. L. Finar (Organic Chemistry, vol I)

					lic Compounds of Mg and Li		applications of DEM and EAA Use of organometallic compounds in organic synthesis	
Sem V, UG	Organic Chemistry - V (CHMMJ – 052) (4)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	II	Amino acids, Peptides and Proteins	10	Classification, Synthesis, Ionic properties and reactions, Zwitter ions, isoelectric point, Electrophoresis, Study and synthesis of Peptides,	Natural Products by O. P. Agarwal
	Organic Chemistry - V (CHMMJ – 052) (4)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	VI	Carbohydrates	10	Classification, biological importants, constitution and absolute configuration of glucose and Fructose, Epimers and Anomers, Mutarotation, ring size of glucose and fructose, interconversion of Aldose and Ketose, Killiani synthesis, Disaccharides, Maltose, Lactose and Sucrose, Pollysaccharides, Starch, cellulose and Glycogen	I. L. Finar (Organic Chemistry, vol I)
	GENERAL CHEMISTRY-V (CHMMI-051)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	II	Nitrogen Containing Functional Groups	8	Preparation and important reactions of nitro compounds, nitriles and isonitriles. Amines: Effect of substituent and solvent on basicity; Preparation and properties: Gabriel	

							phthalimide synthesis, Carbylamine reaction, Mannich reaction, Hofmann's exhaustive methylation, Hofmann-elimination reaction; Distinction between 1°, 2° and 3°amines with Hinsberg reagent and nitrous acid. Diazonium Salts: Preparation and their synthetic applications.	
		Lecture, PPT, Discussion	Textbook, Diagrams, Models	III	Heterocyclic Compounds:	8	Classification, Structure, aromaticity in 5-numbered and 6 membered rings containing one heteroatom; Synthesis, reactions and mechanism of substitution reactions of: Furan, Pyrrole (Paal-Knorr synthesis), Thiophene, Pyridine (Hantzsch synthesis), Structure and reactivity of quinoline and isoquinoline.	
Sem I, PG	ORGANIC CHEMISTRY – I PCHMC - 102	Lecture, PPT, Discussion	Textbook, Diagrams, Models	I	Structure, Bonding and Reactivity	8	Aromaticity, antiaromaticity, homoaromaticity, metallocenes, tropolones, azulenes. • Supramolecular chemistry: weak bonds, charge transfer complexes, inclusion complexes, crown ethers, cryptands, rotaxanes.	I. L. Finar (Organic Chemistry)

							• Fullerenes, Graphenes, Phase transfer catalyst, Hammet equation, Taft equation, influence of reaction medium.	

Name of the Teacher: Mrs Akhtara Hussain Kalita
Semester: EVEN

Class/ Sem	**Title & Code of The Paper Allotted (Credit)**	**Method of Teaching**	**Teaching Material**	**Unit**	**Topic**	**Period/ Hours**	**Details of the Contents**	**Remarks / Books**
Sem IV, UG	ORGANIC CHEMISTRY-II CHMMJ-042 (4)	Lecture, PPT, Discussion	Textbook, Diagrams, Models	Unit-IV	Pharmaceutical Compounds:	10	Classification, structure and therapeutic uses of antipyretics: Paracetamol (with synthesis), Analgesics: Ibuprofen (with synthesis), Antimalarials: Chloroquine (with synthesis). An elementary treatment of Antibiotics and detailed study of chloramphenicol and sulpha drugs (Preparation and mechanism of action), Medicinal values of curcumin (haldi), azadirachtin (neem), vitamin C and antacid (ranitidine).	
				Unit-V	Dyes	10 Lectures	: Classification, Colour and constitution; Mordant and	

							Vat Dyes; Chemistry of dyeing; Synthesis and applications of: Azo dyes-Methyl Orange and Congo Red (mechanism of Diazo Coupling); Triphenyl Methane Dyes -Malachite Green, Rosaniline and Crystal Violet; Phthalein Dyes-Phenolphthalein and Fluorescein; Natural dyes-structure elucidation and synthesis of Alizarin and Indigotin; Edible Dyes with examples.	
Sem VI, UG	ORGANIC CHEMISTRY-IV CHMMJ-062	Lecture, PPT, Discussion	Textbook, Diagrams, Models	Unit-I	Organic Spectroscopy :	12	IR Spectroscopy: Fundamental and non-fundamental molecular vibrations; IR absorption positions of O, N and S containing functional groups; Effect of H-bonding, conjugation, resonance and ring size on IR absorptions; Fingerprint region and its significance; application in functional group analysis. UV Spectroscopy: Types of electronic transitions, λmax, Chromophores and Auxochromes, Bathochromic and Hypsochromic shifts,	

							Intensity of absorption; Application of Woodward Rules for calculation of λmax for the following systems: α, β unsaturated aldehydes, ketones, carboxylic acids and esters; Conjugated dienes: alicyclic, homoannular and heteroannular; Extended conjugated systems (aldehydes, ketones and dienes); distinction between cis and trans isomers.	
Sem II, PG	ORGANIC CHEMISTRY – II PCHMC - 202	Lecture, PPT, Discussion	Textbook, Diagrams, Models	Unit I:	Chemistry of Natural Products	11 Lectures	• Terpenoids: Biosynthesis (isoprenoid rule, mevalonic acid pathway), classification, structure elucidation, synthesis of selected mono/sesqui/diterpenes. • Alkaloids: Classification, extraction, structure elucidation, synthesis of selected alkaloids. U	