

Lesson Plan (2024-25)-Odd Semester

Name of the Assistant Professor: Mr. Vipin

Class and Section: M.Sc. Chemistry (3rd semester)

Subject: Chemistry (Analytical Chemistry) (4-6 days)

WEEK	DATE	TOPICS
1	22.07.2024	
	23.07.2024	
	24.07.2024	
	25.07.2024	Unit-I (Introduction)
	26.07.2024	Data analysis: Mean and standard deviation
	27.07.2024	absolute and relative errors, linear regression, covariance and correlation coefficient
2	29.07.2024	
	30.07.2024	
	31.07.2024	Shaheed Udham Singh Martyrdom Day
	01.08.2024	Chromatography: Types, planar chromatography
	02.08.2024	paper and Thin Layer Chromatography
	03.08.2024	Stationary and mobile phases
3	05.08.2024	
	06.08.2024	
	07.08.2024	
	08.08.2024	Gas chromatography – Theory, instrumentation and applications
	09.08.2024	High Performance Liquid Chromatography (HPLC)
	10.08.2024	High Performance Liquid Chromatography (HPLC)
4	12.08.2024	
	13.08.2024	
	14.08.2024	
	15.08.2024	Independence Day
	16.08.2024	Column chromatography
	17.08.2024	Gel Chromatography
5	19.08.2024	Raksha Bandhan
	20.08.2024	
	21.08.2024	
	22.08.2024	Atomic Absorption Spectroscopy: Principle, instrumentation
	23.08.2024	Absorption and emission line profile, Hollow cathode lamp, Application of atomic absorption spectroscopy
	24.08.2024	sensitivity and detection limits, interferences in AAS
6	26.08.2024	Janmashtami
	27.08.2024	
	28.08.2024	
	29.08.2024	Advantages and Disadvantages of Atomic Absorption Spectroscopy
	30.08.2024	Flame photometry: Theory of flame photometry, Effect of Solvents in Flame photometry

	31.08.2024	Factors that influence the intensity of emitted Radiation in Flame photometry, limitations,
7	02.09.2024	
	03.09.2024	
	04.09.2024	
	05.09.2024	application of flame photometry, Interferences in Flame photometry
	06.09.2024	Test-1 (Unit-I & II)
	07.09.2024	Thermal Methods: Introduction to Thermo gravimetric Analysis (TGA) and Derivative Thermo gravimetric Analysis (DTG)
8	09.09.2024	
	10.09.2024	
	11.09.2024	
	12.09.2024	Instrumentation, thermo gram, factors affecting thermo grams
	13.09.2024	application of thermo gravimetry, Differential Thermal Analysis (DTA)
	14.09.2024	DTA curves, factors affecting DTA curves, Instrumentation, applications of DTA.
9	16.09.2024	
	17.09.2024	
	18.09.2024	
	19.09.2024	Differential Scanning Calorimetry (DSC): Introduction, Instrumentation
	20.09.2024	DSC curves, factors affecting DSC curves, applications
	21.09.2024	Electro gravimetry: Introduction
10	23.09.2024	Shaheedi Divas
	24.09.2024	
	25.09.2024	
	26.09.2024	theory, Instrumentation for constant-current methods
	27.09.2024	Applications, Electrolysis,
	28.09.2024	coulometric titrations, applications of coulometric titrations
11	30.09.2024	
	01.10.2024	
	02.10.2024	Mahatma Gandhi Jayanti
	03.10.2024	Maharaja Agrasen Jayanti
	04.10.2024	Amperometric titrations: Introduction
	05.10.2024	apparatus, and technique of Amperometric titrations
12	07.10.2024	
	08.10.2024	
	09.10.2024	Test-3 (Unit-III)
	10.10.2024	advantages and application of Amperometric titrations, and cyclic voltammetry
	11.10.2024	advantages and application of Amperometric titrations, and cyclic voltammetry
	12.10.2024	Dussehra
13	14.10.2024	
	15.10.2024	
	16.10.2024	
	17.10.2024	Maharshi Valmiki Jayanti
	18.10.2024	Test-2 (Unit-III & IV)
	19.10.2024	Revision

14	21.10.2024	
	22.10.2024	
	24.10.2024	Revision
	25.10.2024	Revision
	26.10.2024	Revision
15	28.10.2024	Diwali Vacation
	29.10.2024	Diwali Vacation
	30.10.2024	Diwali Vacation
	31.10.2024	Diwali Vacation
	01.11.2024	Diwali Vacation/ Haryana Day
	02.11.2024	Diwali Vacation/Vishvakarma Day
16	04.11.2024	
	05.11.2024	
	06.11.2024	
	07.11.2024	Revision
	08.11.2024	Revision
	09.11.2024	Revision
17	11.11.2024	
	12.11.2024	
	13.11.2024	
	14.11.2024	
	15.11.2024	Guru Nanak Dev Jayanti
	16.11.2024	
18	18.11.2024	
	19.11.2024	
	20.11.2024	
	21.11.2024	Revision
	22.11.2024	Revision
	23.11.2024	Revision

Lesson Plan (2024-25)-Odd Semester

Name of the Assistant Professor: Mr. Vipin

Class and Section: B.Sc. Ist semester)

Subject: Chemistry (Major) (1-3 days)

WEEK	DATE	TOPICS
1	22.07.2024	(Unit-1) Dual behavior of matter and radiation, de Broglie relation, Heisenberg uncertainty principle
	23.07.2024	Heisenberg uncertainty principle
	24.07.2024	Concept of atomic orbitals
	25.07.2024	
	26.07.2024	
	27.07.2024	
2	29.07.2024	Concept of atomic orbitals
	30.07.2024	Significance of quantum numbers
	31.07.2024	Shaheed Udham Singh Martyrdom Day
	01.08.2024	
	02.08.2024	
	03.08.2024	
3	05.08.2024	radial and angular wave functions, normal and orthogonal wave function
	06.08.2024	Significance of Ψ and Ψ^2 , shapes of s, p, and d orbitals, rules of filling electrons in various orbitals
	07.08.2024	Effective nuclear charge and Slater's rule
	08.08.2024	
	09.08.2024	
	10.08.2024	
4	12.08.2024	Classification of periodic tables, definition of atomic and ionic,
	13.08.2024	Ionization energy, electron affinity, and electronegativity
	14.08.2024	Trends in periodic table (s and p block elements)
	15.08.2024	Independence Day
	16.08.2024	
	17.08.2024	
5	19.08.2024	Raksha Bandhan
	20.08.2024	Pauling Mulliken, Alred Rachow, and Mulliken Jaffe's electronegativity scale, Sanderson electron density ratio
	21.08.2024	(Unit-II) Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded)
	22.08.2024	Calculation of root mean square velocity, average velocity and most probable velocity.
	23.08.2024	
	24.08.2024	
6	26.08.2024	Janmashtami
	27.08.2024	Collision diameter, collision number, collision frequency and mean free path
	28.08.2024	Deviation of Real gases from ideal behaviour. Derivation of Vander Waal's Equation of State

	29.08.2024	
	30.08.2024	
	31.08.2024	
7	02.09.2024	application in the calculation of Boyle's temperature (compression factor)
	03.09.2024	Critical Phenomenon: Critical temperature, Critical pressure, critical volume, relationship between critical constants, and Vander Waal's constants
	04.09.2024	Test-1 (Unit-I & II)
	05.09.2024	
	06.09.2024	
	07.09.2024	
8	09.09.2024	Unit-III (Structure and Bonding) Localized and delocalized chemical bond, van der Waals interactions
	10.09.2024	resonance: conditions, resonance effect and its applications, hyperconjugation
	11.09.2024	inductive effect, Electromeric effect & their comparison
	12.09.2024	
	13.09.2024	
	14.09.2024	
9	16.09.2024	(Mechanism of Organic Reactions) Curved arrow notation, drawing electron movements with arrows
	17.09.2024	half-headed and double-headed arrows, homolytic and heterolytic bond breaking.
	18.09.2024	Types of reagents – electrophiles and nucleophiles. Types of organic reactions
	19.09.2024	
	20.09.2024	
	21.09.2024	
10	23.09.2024	Shaheedi Divas
	24.09.2024	Energy considerations. Reactive intermediates carbocations
	25.09.2024	carbanions, free radicals, carbenes, arynes and nitrenes (formation, structure & stability)
	26.09.2024	
	27.09.2024	
	28.09.2024	
11	30.09.2024	carbanions, free radicals, carbenes, arynes and nitrenes (formation, structure & stability)
	01.10.2024	Unit-IV (Liquid States) Structure of liquids
	02.10.2024	Mahatma Gandhi Jayanti
	03.10.2024	Maharaja Agrasen Jayanti
	04.10.2024	
	05.10.2024	
12	07.10.2024	Properties of liquids – surface tension, viscosity vapour pressure
	08.10.2024	optical rotations and their determination
	09.10.2024	(Solid State) Classification of solids, Laws of crystallography
	10.10.2024	
	11.10.2024	
	12.10.2024	Dussehra
13	14.10.2024	(i) Law of constancy of interfacial angles (ii) Law of rationality of indices
	15.10.2024	(iii) Law of symmetry. Symmetry elements of crystals

	16.10.2024	Definition of unit cell & space lattice. Bravais lattices, crystal system. Xray diffraction by crystals
	17.10.2024	Maharshi Valmiki Jayanti
	18.10.2024	
	19.10.2024	
14	21.10.2024	Bragg's law a simple account of Laue method, rotating crystal method and powder pattern method
	22.10.2024	Test-2 (Unit-III & IV)
	23.10.2024	Revision
	24.10.2024	
	25.10.2024	
	26.10.2024	
15	28.10.2024	Diwali Vacation
	29.10.2024	Diwali Vacation
	30.10.2024	Diwali Vacation
	31.10.2024	Diwali Vacation
	01.11.2024	Diwali Vacation/ Haryana Day
	02.11.2024	Diwali Vacation/Vishvakarma Day
16	04.11.2024	Revision
	05.11.2024	Revision
	06.11.2024	Revision
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	08.11.2024	
	09.11.2024	
17	11.11.2024	Revision
	12.11.2024	Revision
	13.11.2024	Revision
	14.11.2024	
	15.11.2024	Guru Nanak Dev Jayanti
	16.11.2024	
18	18.11.2024	Revision
	19.11.2024	Revision
	20.11.2024	Revision
	21.11.2024	
	22.11.2024	
	23.11.2024	

Lesson Plan (2024-25)-Odd Semester

Name of the Assistant Professor: Mr. Vipin

Class and Section: M.Sc. Chemistry (Ist semester)

Subject: Chemistry (Sustainable and Green Chemistry) (1-3 days)

WEEK	DATE	TOPICS
1	05.08.2024	UNIT-I
		History of emergence of Green Chemistry, Definition
	06.08.2024	Need and role of Green Chemistry, Principles and concepts of green chemistry synthesis
	07.08.2024	Need and role of Green Chemistry, Principles and concepts of green chemistry synthesis
	08.08.2024	
	09.08.2024	
	10.08.2024	
2	12.08.2024	Green Chemistry v/s Environmental Chemistry
	13.08.2024	End of pipe v/s Cleaner production, Current status and future perspective
	14.08.2024	The twelve principles of Green Chemistry and their illustrations with examples
	15.08.2024	Independence Day
	16.08.2024	
	17.08.2024	
3	19.08.2024	Raksha Bandhan
	20.08.2024	The twelve principles of Green Chemistry and their illustrations with examples
	21.08.2024	Evaluation of Greenness
	22.08.2024	
	23.08.2024	
	24.08.2024	
4	26.08.2024	Janmashtami
	27.08.2024	Environmental factor, Atom Economy
	28.08.2024	calculation of atom economy of the rearrangement
	29.08.2024	
	30.08.2024	
	31.08.2024	
5	02.09.2024	addition, substitution and elimination reactions
	03.09.2024	UNIT-II
		Catalysis and Renewable raw materials
	04.09.2024	Introduction to catalysis. Homogeneous and Heterogeneous catalysis
	05.09.2024	
	06.09.2024	
	07.09.2024	
6	09.09.2024	Phase-transfer catalysis and Biocatalysis
	10.09.2024	Photocatalysis, Catalysis for Green Chemistry with examples
	11.09.2024	Renewable raw materials
	12.09.2024	
	13.09.2024	

	14.09.2024	
7	16.09.2024	Chemical products based on renewable sources
	17.09.2024	Test (Unit-I & II)
	18.09.2024	UNIT-III
		Alternative Green solvents
	19.09.2024	
	20.09.2024	
8	21.09.2024	
	23.09.2024	Shaheedi Divas
	24.09.2024	Volatile organic compounds (VOCs)
	25.09.2024	Supercritical fluids
	26.09.2024	
	27.09.2024	
9	28.09.2024	
	30.09.2024	Alternatives in Advancement of Green Chemistry in extraction and chromatography
	01.10.2024	Alternatives in Advancement of Green Chemistry in extraction and chromatography
	02.10.2024	Mahatma Gandhi Jayanti
	03.10.2024	Maharaja Agrasen Jayanti
	04.10.2024	
10	05.10.2024	
	07.10.2024	Ionic liquids as solvents: its types, properties and applications
	08.10.2024	UNIT-IV
		Green technology and sources of alternative energy
	09.10.2024	Photochemical and Electrochemical reactions
	10.10.2024	
11	11.10.2024	
	12.10.2024	Dussehra
	14.10.2024	Green photo-chemical reactions
	15.10.2024	Green Chemical Reactions under Microwave (Microwave Assisted Synthesis)
	16.10.2024	Green Chemical Reactions under Microwave (Microwave Assisted Synthesis)
	17.10.2024	Maharshi Valmiki Jayanti
12	18.10.2024	
	19.10.2024	
	21.10.2024	Role of Sonication and Ball milling in Green chemical synthesis with examples
	22.10.2024	Role of Sonication and Ball milling in Green chemical synthesis with examples
	23.10.2024	Flow techniques and role of Flow chemistry for the sustainable development
	24.10.2024	
13	25.10.2024	
	26.10.2024	
	28.10.2024	Diwali Vacation
	29.10.2024	Diwali Vacation
	30.10.2024	Diwali Vacation
	31.10.2024	Diwali Vacation
	01.11.2024	Diwali Vacation/ Haryana Day
	02.11.2024	Diwali Vacation/Vishvakarma Day

14	04.11.2024	Flow techniques and role of Flow chemistry for the sustainable development
	05.11.2024	Test (Unit-III & IV)
	06.11.2024	Revision
	07.11.2024	
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15	11.11.2024	Revision
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	15.11.2024	Guru Nanak Dev Jayanti
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	23.11.2024	