

MDC Introductory Chemistry

LESSON PLAN (2025-2026)

CLASS - BA.1st (even sem.)

14 JAN. to 13 FEB, 2026

* UNIT-I Renowned Indian Scientists

Brief Biography of Hargobind Kherama, Dr. P.C. Ray, Sir C.V. Raman, Dr. A.P.J. Abdul Kalam, C.N.R. Rao, Vikram Sarabhai, Dr. Homi Jahangir Bhabha, Dr. J.C. Bose, Dr. S.N. Bose.

14 FEB. to 12 MARCH; 2026

* UNIT-II Metals and non metals

Periodic table, classification of elements, Physical and chemical aspects of metals and non metals, Ores and minerals of Iron, Copper, Aluminium, Alloys.

13 MARCH to 3 APRIL; 2026

* UNIT-III Physical properties of matter

Classification of matter, properties, uses, ideal gas equation, real gas equation, Baking soda washing soda, plaster of Paris, gypsum, glass

4 APRIL to 30 APRIL; 2026

* UNIT-IV Soil and fertilizers

Green revolution, soil, types of soil, their components for fertility, pH, biofertilizers, chemical fertilizers, use and acid rain, Revision Work

DIMPLE

Asst. Professor, Chemistry

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LESSON PLAN (2025-2026)

SUB. - CHEMISTRY

CLASS - B.Sc.I (2nd sem)

14 JANUARY 2026 to 13 FEBRUARY 2026

- * Covalent Bond - VB Theory, shapes of molecules and ions based on VSEPR theory, hybridization with suitable examples, Molecular orbital theory of N_2 , O_2 and CO , NO , Dipole moment and % ionic character.
- * Hydrogen bonding and Van der Waals forces - Definition, types, effect of hydrogen bonding on properties of substances, application, various types of Van der Waal forces.

14 FEBRUARY 2026 to 12 MARCH 2026

- * Chemical kinetics - Reaction rate, rate equation, factors affecting rate of rx., order & molecularity of rx., integrated rate for zero, first, half life period, Arrhenius eq.
- * Alkanes and cycloalkanes - Nomenclature, classification, Isomerism, Methods of naming rx., Physical properties, Mechanism of free radical halogenation of alkanes, Nomenclature of cycloalkanes, Baeyer's strain theory etc.

13 MARCH 2026 to 3 APRIL 2026

- * Alkenes - Nomenclature, structure, method of formation (dehydration, dehydrogenation etc), Saytzeff rule, chemical reaction (ozonolysis etc), Markownikoff's rule of addition.
- * Ionic solid - Ionic structure ($NaCl$, $CaCl_2$, ZnS , CaF_2), radius ratio rule, lattice energy, Born Haber cycle, Polarizing power & polarisability of ions, Fajan's rule.

4 APRIL to 20 APRIL 2026

- * DISTRIBUTION LAW - Nernst distribution law, its thermodynamic derivation, (association & distribution) of solute in one of the phase

DISTRIBUTION LAW

- i) Determination of degree of hydrolysis and hydrolysis constant of aniline hydrochloride.
- * Semiconductors — Introduction, types and applications.

21 APRIL 2026 TO 30 APRIL 2026

Metallic bond — Qualitative idea of valence bond and band theories of metallic bond (conductors, semiconductors, insulators)

Revision work



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Assistant Professor

Chemistry



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2025-2026

14 Jan to 13 Feb; 2026 - Introduction to value education

Definition, meaning, objectives, importance, need, type of value education, Content & process for value education
Value education and life skills, understanding the diff b/w skill, values & ethics & their relevance in life.

14 Feb. to 12 March 2026 ⇒ Classification of value education

Introduction, classification, diff. b/w ideology and values, Role of ideology in shaping societal norms, influence of value and ideology in decision making process, Harmony concept, history, harmony with self, society and nature

• Human values and ethics - introduction, definition, meaning, basics, nature, sources, significance of Human values

13 March to 3 April 2026 ⇒ Ethics - importance and

principle, components, sources, Relation b/w values & ethics

• The relevance of human values - Integrity: meaning, types, integrity in everyday life, Empathy: characteristics & types of empathy, Understanding 'Lokasangraha' & 'Brahamvikara', Theory of 'Naya', Denology, Utilitarianism, Virtue ethics

4 April to 21 April 2026 ⇒ Integrity personality

and well being - Understanding the relationship among self, identity and personality, Theory of Sankhya, Gunas, four Antah-karanas in Yoga

Panchkosha (five sheaths) in Upanishad
Significance of integrated personality,
Relationship b/w well being and happiness

- Professional ethics and global citizenship

Introduction, importance, key principles, nature, scope, characteristics & types of professional ethics, Global citizenship - value: Equality, justice, human Dignity

22 April to 30 April 2026

- Competency based education

Introduction, definition, Key features, Benefits, Challenges, its nature, need.

Type of competencies; Core, Functional Competencies. Difference b/w functional & core competencies, successful examples.



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B.Sc. FINAL (6th Sem.)CHEMISTRY (2025-26)14 JAN. to 13 FEB; 2026

* UNIT-II PHOTOCHEMISTRY - Interaction of radiation with matter, diff. b/w thermal & photochemical process, Law of Photochemistry, Law of Photochemical equivalence, Absorption coefficient, singlet & triplet states, Jablonski diagram, fluorescence, phosphorescence, IC & ISC. Lifetime of excited states, Quantum yield, Photosensitized rx.

* Unit III IR Spectroscopy \Rightarrow IR spectroscopy, Molecular vibrations, Hooke's law, selection rules, intensity & position of IR bands, measurement of IR spectrum, fingerprint region, characteristic absorption of functional groups and interpretation of IR spectra of simple organic compounds.

14 Feb. to 12 March; 2026

* UNIT-I Bioinorganic Chemistry - Metal ions present in biological system, classification (essential, non-essential, trace, toxic), Metalloporphyrins, haemoglobin and myoglobin, Biological role of Na^+ , K^+ , Ca^{2+} , Mg^{2+} , Fe^{2+} , Cooperativity effect, Bohr effect

* UNIT-III NMR Spectroscopy - Principle of NMR, PMR spectrum, no. of signals, peak areas, non equivalent protons, position of signals, chemical shift, shielding & deshielding of protons, splitting of signals & coupling constant, PMR spectra of some molecules.

13 March to 3 April 2026

Amino acids, peptide - Classification, α A.A., synthesis, Zwitterions, pKa values, isoelectric point, electrophoresis, study of peptide synthesis

Carbohydrates - Occurrence, classification and their biological importance, Monosaccharides - Constitution, absolute configuration - glucose, fructose, epimers and anomers, mutarotation, ring size, Haworth projection.

4 APRIL to 30 April 2026

Carbohydrates Conformational structures, Interconversion of aldoses & ketose, Killiani Fischer synthesis, Ruff degradation

IR spectra \Rightarrow numericals practice

NMR spectra - Interpretation of NMR spectra of ethyl bromide, n-propyl bromide, isopropyl bromide and 1,1-dibromoethane.

Revision work



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