# BSC 1ST SEM CHEMISTRY

| DATE | TOPIC |
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| 28/07/2024 TO 12/08/2024 | **Atomic Structure**<br>Dual behaviour of matter and radiation, de Broglie's relation, Heinsenberg's uncertainty principle, concept of atomic orbitals, significance of quantum numbers, radial and angular wave functions, normal and orthogonal wave functions, significance of I and $Y^2$, shapes of s, p, d, f orbitals , Rules for filling electrons in various orbitals, effective nuclear charge. |
| 13/08/2024 TO 27/08/2024 | Slater's rules. Periodic table and atomic properties<br>Classification of periodic table, definition of atomic and ionic radii ,ionisation energy, electron affinity and electronegativity, |
| 29/08/2024 TO 11/09/2024 | trend in periodic table (in s and p-block elements), Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio. |
| 12/09/2024 TO 26/09/2024 | Critical Phenomenon<br>Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal' s constants (Derivation excluded). |
| 27/09/2024 TO 14/10/2024 | **Structure and Bonding**<br>Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications, hyperconjugation, inductive effect, Electromeric effect and their comparison.<br>Mechanism of Organic Reactions |
| 15/10/2024 TO 29/10/2024 | Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions. Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). |

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| 5/11/2024 TO 20/11/2024 | **Liquid State** Structure of liquids, Properties of liquids surface tension, refractive index, viscosity, vapour pressure and optical rotation.<br>Solid State |
| 21/11/2024 TO 28/11/2024 | Classification of solids, Law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry and symmetry elements, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, a simple account of Laue method, rotating crystal method and powder pattern method. |