**Lesson Plan Even Semester-(2023-2024)**

Name of the Assistant Professor: Dr. Parveen

**Subject: Chemistry**

**B.Sc. Ist Year - B23-CHE-201(Non med)**

**B.Sc. Ist Year - B23-CHE-201 (MED)**

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| Month | Topic/ Chapter |
| February 2024 | **B23-CHE-201**  **Alkanes and Cycloalkanes**  Nomenclature, classification of carbon at oms in alkanes and its structure. Isomerism in alkanes, sources. Methods of formation: Wurtz reaction, Kolbe reaction, Corey- House reaction and decarboxylation of carboxylic acids, physical properties. Mechanism of free radical halogenation of alkanes: reactivity and selectivity. Nomenclature of Cycloalkanes, Baeyer' s strain theory and its limitations, theory of strainless rings.  **Alkenes**  Nomenclature of alkenes and its structure. Methods of formation: dehydration of alcohols, dehydrohalogenation of alkyl halide, Hofmann elimination and their mechanism. The Saytzeff rule and relative stabilities of alkenes. Chemical reactions: electrophilic and free radical additions, addition of halogens, halogen acids, hydroboration–oxidation, oxymercuration-reduction, ozonolysis and hydration. Markownikoff’s rule of addition.  **(Assignments/test/problem discussion)** |
| March 2024 | **B23-CHE-201**  **Hydrogen Bonding and Van der Waals forces**  Hydrogen Bonding – Definition, types, effects of hydrogen bonding on properties of substances, application Brief discussion of various types of Van der Waals forces.  **Metallic Bond and semiconductors**  Metallic bond – Qualitative idea of valence bond and Band theories of metallic bond (conductors, semiconductors, insulators). Semiconductors – Introduction, types, and applications.  **Covalent Bond**  Valence bond theory approach, shapes of simple inorganic molecules and ions based on valence shell electron pair repulsion (VSEPR) theory and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. Molecular orbital theory of homonuclear (N2, O2) and heteronuclear (CO and NO) diatomic molecules, dipole moment and percentage ionic character in covalent bond.  **(Assignments/test/problem discussion)** |
| April 2024 | **B23-CHE-201**  **Ionic Solids**  Ionic structures (NaCl, CsCl, ZnS (Zinc blende), CaF2) size effects, radius ratio rule and its limitations, Concept of Lattice energy, Born- Haber cycle, Solvation energy and its relationship with solubility of Ionic solids, Polarizing power and Polarisability of ions, Fajan’s rule.  **Chemical Kinetics**  Concept of reaction rates, rate equation, factors influencing the rate of reaction, Order and molecularity of a reaction, integrated rate expression for zero, first, Half-life period of a reaction, Arrhenius equation.  **(Assignments/test/problem discussion)** |
| May 2024 | **B23-CHE-201**  **Distribution Law**  Nernst distribution law – its thermodynamic derivation, Nernst distribution law after association and dissociation of solute in one of the phases, of distribution law: (i) Determination of degree of hydrolysis and hydrolysis constant of aniline hydrochloride  **(Assignments/test/problem discussion)** |