Curriculum Plan (Odd Semester 2024-25)

Teacher Name: **Dr. Geeta Devi Yadav**

Course: B.Sc. (H) Chemistry, NEP-UGCF, Semester I year

Paper Name: Atomic Structure & Chemical Bonding (DSC-1) (1 periods per week)

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| **S. No.** | **Contents** | **Allocation**  **of Lectures** | **Monthwise**  **schedule to be followed** | **Assignments/ Presentations etc** |
| 1. | **Periodic Properties of Elements & Periodic Trends**  A brief discussion of the following properties of the elements, concerning s- & p-block and their trends: (a) Effective nuclear charge, shielding or screening effect and Slater’s rules (b) Atomic and ionic radii (c) Ionization enthalpy (Successive ionization enthalpies) (d) Electron gain enthalpy (e) | **6** | **First week September – Fourth week September** | **Syllabus overview**  **Reference books suggestions**  **Question-Solving Doubt Session** |
| 2. | Pauling’s scale of electronegativity-variation of electronegativity with bond order and hybridization.  **Atomic Structure**  Recapitulation of the concept of the atom in ancient India, Bohr’s theory & its limitations, the atomic spectrum of the hydrogen atom. de Broglie equation, Heisenberg’s Uncertainty Principle and its significance. | **12** | **First week October – first week November** | **Question-Solving Doubt Session University Papers Discussion**  **Class Test** |

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| 3. | **Atomic Structure**  Postulates of wave mechanics. Time independent Schrödinger’s wave equation, well-behaved wave function, significance of ψ and ψ 2. Quantum mechanical treatment of H- atom, Quantum numbers, and their importance. Normalized and orthogonal wave functions. Sign of wave functions. |  | **Second week November – Third week December** | **Question-Solving Doubt Session**  **University Papers Discussion**  **Assignment Distribution** |

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