

**CURRICULUM PLAN - Dr. Rajesh Kumar Meena
(Odd Semester, 2020-2021)**

B.Sc. (H) Chemistry, Ist Year (Semester I)

Name of Paper:- Inorganic Chemistry–I Atomic Structure & Chemical Bonding

Contents	Allocation of Lectures	Month wise schedule to be followed	Tutorial/Assignments/Presentation etc
Bohr's theory, Wave mechanics: de Broglie equation, Heisenberg's Uncertainty Principle and its significance. Schrödinger's wave equation, significance of ψ and ψ^2 . Shapes of s, p, and d orbitals, Relative energies of orbitals. Pauli's Exclusion Principle, Hund's rule of maximum spin multiplicity, Aufbau principle and its limitations.	8	First week January - Second week January	Video Lecture/ PPT Presentation and Doubt Session
Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table. Atomic and ionic radii, Ionization enthalpy, Successive ionization enthalpies and factors affecting ionization enthalpy and trends in groups and periods. Electron gain enthalpy and trends in groups and periods.	10	Third week January - Second week February	PPT Presentation / Assignment Distribution
Covalent character, polarizing power and polarizability. Fajan's rules and consequences of polarization. Born-Haber cycle, Solvation energy.	4	Third week February	Previous Year Papers Discussion
VBT, Energetics of hybridization, equivalent and non-equivalent hybrid orbitals. Bent's rule, Resonance and resonance energy. Ionic character in covalent compounds: Bond moment and dipole moment. Percentage ionic character from dipole moment and electronegativity difference. MOT diagrams of diatomic and simple polyatomic molecules N ₂ , O ₂ , C ₂ , B ₂ , F ₂ , CO, NO, and their ions; HCl (idea of s-p mixing and orbital interaction to be given).	8	Fourth week February-First week March	Doubt Session Assignment Collection

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