

FCYC101	Inorganic Chemistry-I	3-0-0	3
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Module-I

Atomic structure: de-Broglie matter waves, Uncertainty principle, Schrodinger wave equation(excluding derivations), quantum numbers and its significance, Radial and angular wave functions, spherical harmonics, Radial and angular distribution curves, shapes of s, p, d orbitals, selection rules and electronic configuration of elements. **[6hrs]**

Module-II

Periodic properties: Screening effect, effective nuclear charge, size of atoms and ions, ionization potential, electron affinity, electronegativity, variable valency and oxidation states, horizontal, vertical and diagonal relationship. **[6hrs]**

Module-III

Chemical bonding- I: Ionic bond, polarizability, Fajan's rule, structure of ionic solids, radius ratio rules, close packing, classification of ionic structures(compounds of the type AX,AX₂), lattice energy and Born-Haber cycle, solvation energy and solubility of ionic compounds, stoichiometric defects, non-stoichiometric defects. **[12hrs]**

Module-IV

Chemical bonding- II: Lewis theory, dipole moment and its application, percentage ionic character from dipole moment and electronegativity, VBT, hybridization,VSEPR theory, MOT(homo and heteronuclear diatomic molecule), Resonance **[6hrs]**

Metallic bond(free electron and band theories) H-bond, Vander waals force. **[3hrs]**

Essential readings:

1. J.D. Lee, Concise Inorganic Chemistry, 5th edition, Blackwell Publishing, 2008
2. Huheey, Keiter and Keiter, Inorganic chemistry Principle, structure and reactivity. 4th edn
3. Inorganic Chemistry R.D.Madan, S.Chand Publication
4. Basic Inorganic Chemistry Cotton & Willikinson