المحتوى العلمي للمقرر:

- ***The Covalent Bond***
- ***Lewis octet theory, Lewis acids, Lewis bases***
- ***Theories of covalent bond***
- ***The wave function (Ψ), The radil part of (Ψ), The square of (Ψ)***
- ***Valence Bond Theory (VBT), Simple VBT treatment of H_2 molecule***
- ***Assumptions to modify the value of The mixing coefficient***
- ***Resonance structures, Molecular Orbital Theory (MOT)***
- ***Mixing of Orbitals, Bonding orbitals, Antibonding orbitals***
- ***Simple MOT treatment of H_2 molecule***
- ***Overlap and symmetry, Overlap integral***
- ***Non- bonding orbitals***
- ***Molecular Orbitals energy level diagrams***
- ***Homonuclear simple diatomic molecules***
- ***The build – up of molecular orbitals***
- ***Ionic compounds, Properties, Crystal lattice energy, The Born-Haber cycle, Hess Law***
- ***Application of Born-Haber cycle***
- ***Stability of ionic compounds, Size effects***
- ***Structure of crystal lattices***
- ***Ionic radii***
- ***Efficiency of packing and crystal lattice***
- ***Radius ratio rule, Polarization, Fajans rules, Effects of polarization***
- ***The hydrogen, The unique behavior of hydrogen, Isotopes of hydrogen, The hydrides***
- ***Saline hydrides, Metalic hydrides, Storage of hydrogen***
- ***Transition – metal hydrides complexes***
- ***Non- metal hydrides, Hydridic and protonic character .***

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Basic inorganic chemistry, F. A. Cotton, G. Wilkinson and P.L. Gauss, Third Edition, 1995, Wiley &bSons.

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