Focused Syllabus (2020-2021)
Physics (042)
Class – XI

UNIT – 1:
- Dimensional analysis and its application.

UNIT – 2:
- Uniform motion, Velocity-time graph and position time graph.
- Relative Velocity.
- Scalar and vector products of vectors, addition and subtraction of vectors.
- Projectile motion.

UNIT – 3:

- Law's of friction,Dynamics of uniform circular motion, Centripetal force, , Vehicle on a circular road and banked road

UNIT – 4:

- Elastic and inelastic collision in one and two dimensions.
- Energy conservation, potential energy of spring, conservative and non-conservative forces.

UNIT- 5:

- Motion of a centre of mass of two particle system, centre of mass of uniform rod.
- Equation of Rotational motion, radius of gyration
- Laws of conservation of angular momentum and its application.

UNIT – 6:

- Escape and orbital velocity of satellite , geo-stationary satellite.
- Gravitational potential

UNIT – 7:

- Modulus of elasticity, Hooke's law.
- Pascal's law, hydraulic lift and hydraulic breaks, viscosity, stoke's law, terminal velocity of fluid, streamline and turbulent flow, Critical velocity, Bernoulli's theorem and its applications.
- Surface tension, excess of pressure inside in drop and bubble, application of surface tension and capillary rise.

- Thermal expansion of solids liquid and gases, anomalous behavior of water, relation $C_p - C_v = R$
- Wein's displacement law and Stefan's law.

UNIT – 8:

- Zeroth Law of Thermodynamics, Work done in isothermal and adiabatic processes, First and second law of thermodynamics, reversible and irreversible process.

UNIT – 9:

- Assumption of kinetic theory of gases and pressure concept, degree of freedom, law of equi-partition of energy, Avogadro's number.

UNIT – 10:

- Simple harmonic motion and its equation, derivation of time period of simple pendulum, free, forced and damped oscillation.
- Transverse and Longitudinal waves, Principle of superposition of waves.
- Speed of travelling waves, Laplace correction, standing wave in string and organ pipe.