

SHIVPRASAD SADANAND JAISWAL COLLEGE
ARJUNI/MOR. DIST- GONDIA
Department of Physics
Bridge Course Syllabus

Durations: 15 hrs

1. Measurements **(2 hrs)**

Introduction, Need for measurement, Units and dimensions, Scalars and vectors.

2. Gravitation **(2 hrs)**

Newton's law of gravitation, Acceleration due to gravity, Variation of 'g' due to altitude, latitude, depth and motion.

3. Rotational motion **(2 hrs)**

Definition of M.I., K.E. of rotating body, Rolling motion, Physical significance of M.I., Radius of gyration, Torque, Principle of parallel and perpendicular axes, M.I. of some regular shaped bodies about specific axes, Angular momentum and its conservation.

4. Oscillations **(2 hrs)**

Explanation of periodic motion, S.H.M., Differential equation of linear S.H.M. Phase of S.H.M., K.E. and P.E. in S.H.M., Composition of two S.H.M.'s

5. Elasticity **(2 hrs)**

General explanation of elastic property, Plasticity, Deformation, Definition of stress and strain, Hooke's law, Poisson's ratio, Elastic energy, Elastic constants and their relation, Determination of 'Y', Behavior of metal wire under increasing load,

6. Force **(2 hrs)**

Types of forces, General idea of gravitation, electromagnetic and nuclear forces, Law of conservation of momentum, Work done by a variable force. Work energy theorem, Elastic and inelastic collisions in one and two dimensions, Inertial and non-inertial frames, Centre of mass.

7. Electrostatics **(3 hrs)**

Frictional electricity, Charges and their conservation, Coulomb's law and dielectric constant, Forces between multiple electric charges, Superposition principle of forces, Continuous distribution of charges, Concept of charge density, Electric field intensity, Electric potential due to point charge.