Shri Swami Vivekanand Shikshan Sanstha
Dattajirao Kadam Arts, Science & Commerce , Ichalkaranji
Physics Mechanics-1

B.Sc.-1 paper-1   Outcomes

1) Vectors

1) Student should understand the triangle law and parallelogram law of vector addition and subtraction.

2) Student should understand the analogy between vector product and scalar product and characteristic of each.

3) Student should develop skill in computing vector product, work done, unit vector area of parallelogram.

4) Student should understand the concept of vector, scalar, unit vector, types of vector.

2) Ordinary Differential Equations

1) Student should understand the basic concept equations of differential equations, types of differential equations, different methods of solving differential equations.

2)) Student should understand the different methods of solving differential equations, so that they can solve the differential equations and get the solution of differential equation.

3) Student should develop the skill solving different differential equations.

4) Student should develop the skill to apply differential equation solution to finding physical problems like instantaneous current equations, radioactive decay problems etc.

3) Laws of motion

 1) Student should understand the basic principles in mechanics and motion so they can find out the exact relation between forces applied on the body and motion of body.

2) Student should understand the concept of frame of references, so that they can imagine what types of forces acting on body correctly and calculate the relations.

3) Student should understand concepts of force and momentum and its unit so that they can understand the Newton's first and second laws and its mathematical statements.

4) Student should develop the skills to solve the problems on force and momentum and also give the application of laws of motion like Rockets, Sports, Ball games, Seat belts etc.

4) Momentum and Energy

1) Student should understand the concepts and units related to momentum and energy, and analyze with the aid of vector diagrams and linear momentum of objects.

2) Student should analyze situations involving concepts of energy and momentum and laws of conservation of momentum and energy. Explain common situations involving work and energy using work energy theorem.

3) Student should investigate motion in a plane through experiments. Solve the problems involving the forces acting on object in linear, projectile and circular motion with aid of vectors, graphs, free body diagrams and angular momentum related to formulas.

4) Student should demonstrate an understanding in qualitative and quantitative terms of concepts of work, energy, momentum etc.

5) Rotational Motion

1) Student should understand the analogy between translational and rotational kinematics so they can write and apply relations among the angular displacements, angular velocity, and angular acceleration of an object that rotates about a fixed axis with constant angular acceleration.

2) Student should understand the motion of rigid object along the surface, so that they can calculate moment of inertia, velocity, acceleration, total kinetic energy of an object that undergoing both translational and rotational motion and apply energy conservation in analyzing such motion.

3) Student should develop skills in computing rotational inertia so they can find the rotational inertia of solid cylinder, spherical shell.

4) Student should understand the concept of torque so they can calculate the magnitude and direction of the torque associated with a given force.