Core Course 1 Mechanics

- ➢ Total 75 Marks
- ➢ 60 Marks for Semester-end-Examination[#] (will be organized by University)
- ➢ 10+5=15 Marks for Internal Assessment (will be organized by College in general and Department in Particular)
- ➢ 10 Marks for Class Test/ Assignment/ Seminar
- ➢ 5 Marks for Attendence
  - Attendence: 50% & above but below 60% - 2 Marks
  - Attendence: 60% & above but below 75% - 3 Marks
  - Attendence: 75% & above but below 90% - 4 Marks
  - Attendence: 90% & Above - 5 Marks

Internal Assessment	Component 1 (C_1)	Component 2 (C_2)
Weightage	5 Marks	5 Marks
Number of Questions	5 (FIVE)	5 (FIVE)
Date	14-09-2018	26-11-2018
Time	12:30 PM	12:30 PM
Syllabus	1.Vectors: Vector algebra, Scalar and vector products, Derivatives of a vector with respect to a parameter. 2. Ordinary Differential Equations: 1st order homogeneous differential equations. 2 nd order homogeneous differential equations with constant coefficients. 3.Laws of Motion: Frames of reference. Newton's Laws of motion. Dynamics of a system of particles. Centre of Mass. 4. Momentum and Energy: Conservation of momentum. Work and energy. Conservation of energy. Motion of rockets. 5.Rotational Motion: Angular velocity and angular	1.Gravitation: Newton's Law of Gravitation. Motion of a particle in a central force field (motion is in a plane, angular momentum is conserved, areal velocity is constant). Kepler's Laws (statement only). Satellite in circular orbit and applications. Geosynchronous orbits. Weightlessness. Basic idea of global positioning system (GPS). 2. Oscillations: Simple harmonic motion. Differential equation of SHM and its solutions. Kinetic and Potential Energy, Total Energy and their time averages. Damped oscillations. 3. Elasticity: Hooke's law - Stress-strain diagram - Elastic moduli-Relation between elastic constants - Poisson's Ratio-Expression for Poisson's ratio in terms of elastic constants-Work done in stretching and work done in twisting a wire-Twisting couple on a cylinder - Determination of Rigidity modulus by static torsion -Torsional pendulum- Determination of Rigidity modulus

momentum. Torque. Conservation of angular momentum.	and moment of inertia . 4. **Special Theory of Relativity:** Constancy of speed of light. Postulates of Special Theory of Relativity. Length contraction. Time dilation. Relativistic addition of velocities.

Name of Teacher(s)	Md Ashik	Md Ashik
Number of Classes	62 (Tentative)	120 (Tentative)

#Component 3 (C_3)
- ➤ 60Marks for Semester-end-Examination (will be organized by University)
- ➤ Answer 10 questions out of 15 carrying 02 marks each = 10 x 02 = 20 marks
- ➤ Answer 04 questions out of 06 carrying 05 marks each = 04 x 05 = 20 marks
- ➤ Answer 02 questions out of 04 carrying 10 marks each = 02 x 10 = 20 marks

- ➤ Whole Syllabus of CC 1

- ➤ Practical (Mechanics) = 20 Marks
  Laboratory Note Book: 05 Marks
  Viva- voce: 05 Marks
  Experiment: 40 Marks (This 40 marks will be transformed into 10 Marks)

- ➤ A project File (Laboratory Note Book), comprising one exercise each is to be submitted.

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