

Part A: Introduction

Program: Diploma Course		Class: B.Sc. Sem.IV	Year: 2023	Session:2023-2024
1	Course Code	MSE-2		
2	Course Title	Mechanics		
3	Course Type	Theory		
4	Course Learning Outcome (CLO)	<p>This Course will enable the students to:</p> <ul style="list-style-type: none">i) Familiarize with subject matter, which has been the single centre, to which were drawn mathematicians, physicists, astronomers and engineers together.ii) Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a particle.iii) Determine the centre of gravity of materialistic systems and discuss the equilibrium of a uniform cable hanging freely under its own weight.iv) Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particlev) Learn that a particle moving under a central force describes a plane curve and know the Kepler's laws of the planetary motions, which were deduced by him long before the mathematical theory given by Newton.		
5	Credit Value	Theory & Tutorial: 4		
6	Total Marks	Maximum Marks : 100 (Ext. 80 + Int. 20)	Minimum Passing Marks : 40	

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Part B: Content of the Course

Unit	Topics	No. of Hours
I	Statics : Analytical conditions of Equilibrium, Stable and unstable equilibrium, virtual work	15
II	Catenary, Forces in three dimensions, Poinso's central axis, Null lines and planes,	15
III	Dynamics: Simple harmonic motion and its geometrical representation. Elastic strings, velocities and accelerations along radial and transverse directions, Projectile. Motion in resisting medium, Motion of particles in varying mass.	15
IV	Central orbits, Kepler's laws of motion, velocities and acceleration in tangential and normal directions, motion on smooth and rough plane curves.	15

Part C - Learning Resource

Text Books, Reference Books, Other Resources

1. R. S. Varma (1962). *A Text Book of Statics*. Pothishala Pvt. Ltd.
2. P.L. Srivastava (1964). *Elementary Dynamics*. Ram Narain Lal, Beni Prasad Publishers Allahabad.
3. J. L. Synge & B. A. Griffith (1949). *Principles of Mechanics*. McGraw-Hill.
4. S.L. Loney (2006). *An Elementary Treatise on the Dynamics of a Particle and of Rigid Bodies*. Read Books.
5. A. S. Ramsey (2009). *Statics*. Cambridge University Press.
6. A. S. Ramsey (2009). *Dynamics*. Cambridge University Press.
7. Suggested Equivalent **online courses**: Web link NPTEL/ SWAYAM/ MOOCs

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	100 Marks
Continuous Comprehensive Evaluation (CCE):	20 Marks
Semester End Exam (SEE):	80 Marks

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Internal Assessment: Continuous Comprehensive Evaluation(CCE)	Internal Test -02 of 10 Marks each Assignment/Seminar-01 Of 10 Marks	Sum of best of two test and assignment marks
Semester End Exam (SEE)	Paper-Two Section-A&B Section-A: Objective and short answer type question-1x10+3x10= 40 Marks Section-B: Descriptive answer type question Module wise- 10x4 =40 Marks	
Amendment or Modification shall may be made by course coordinator as per situation or directed by the department/Examination cell/NEP-20 Scheme coordinator		
Name and signature of		

Name and signature of convener & member of BOS:

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 cr. U.K. shrivastava













