

ENGINEERING MECHANICS LAB

(Mechanical Engineering)

Course code	23ME3251	Year	I	Semester	II
Course Category	Professional Core	Branch	ME	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisites	Nil
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes:

CO1: Evaluate the coefficient of friction between two different surfaces and between the inclined plane and the roller.

CO2: Verify Law of Polygon of forces and Law of Moment using force polygon and bell crank lever.

CO3: Determine the Centre of gravity and Moment of Inertia of different configurations.

CO4: Verify the equilibrium conditions of a rigid body under the action of different force systems.

Contribution of Course outcomes towards achievement of programme outcomes & Strength of correlations (High :3, Medium :2, Low :1)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	3	2	1	2				1	1			3	1
CO 2	3	3	2	1	2				1	1			3	1
CO 3	3	3	2	1	2				1	1			3	1
CO 4	3	3	2	1	2				1	1			3	1
CO 5	3	3	2	1	2				1	1			3	1

Syllabus		
S.No	Experiment	Mapped CO
1	Verification of Law of Parallelogram of Forces	CO 2
2	Verification of Law of Triangle of Forces	CO 2
3	Verification of the Law of polygon for coplanar-concurrent forces acting on a particle in equilibrium and to find the value of unknown forces considering particle to be in equilibrium using universal force table	CO 2
4	Determination of coefficient of Static and Rolling Frictions	CO 1
5	Determination of Centre of Gravity of different shaped Plane Lamina	CO 3
6	Verification of the conditions of equilibrium of a rigid body under the action of coplanar non-concurrent, parallel force system with the help of a simply supported beam	CO 4
7	Study of the systems of pulleys and draw the free body diagram of the system.	CO 4

8	Determine the acceleration due to gravity using a compound pendulum	CO 4
9	Determine the Moment of Inertia of the compound pendulum about an axis perpendicular to the plane of oscillation and passing through its centre of mass.	CO 3
10	Determine the Moment of Inertia of a Flywheel	CO 3
11	Verification of Law of Moment using Rotation Disc Apparatus and Bell Crank Lever.	CO 2

Note: Students have to perform any 10 of the above Experiments

References:

1. S. Timoshenko, D. H. Young, J.V. Rao, S. Pati., Engineering Mechanics, 5th Edition, McGraw Hill Education.
2. Hibbeler R.C., Engineering Mechanics: Statics and Dynamics, 14th Edition, Pearson Education, Inc., New Delhi, 2022