

<b>Course Title:</b>				Engineering Mechanics				
<b>Course Code:</b>				MEL1012				
<b>Course Coordinator</b>				Dr.Sanjay Mohan				
<b>Credits</b>				<u>4</u>				
<b>Evaluation Scheme Total 100 Marks</b>								
<b>Quiz (Total 20 Marks)</b>				<b>Assignment/Project (Total 20 marks) (Minimum Two Assignments or one Project)</b>		<b>Mid-Term</b>	<b>Major Examination</b>	<b>Total</b>
<b>Quiz I (5 marks)</b>	<b>Quiz II (5 marks)</b>	<b>Quiz III (5 marks)</b>	<b>Quiz IV (5 marks)</b>			<b>20 marks) (1 ½ Hour Duration)</b>	<b>(40 marks) (3 Hour Duration)</b>	<b>100 Marks</b>
<b>WEEKS</b>				<b>TOPICS TO BE COVERED</b>				
<b>Week 1</b>				Introduction to Engineering Mechanics, its significance. Fundamental Laws, Force and Force Systems: Coplanar, Concurrent and Non-Concurrent Force Systems, Resultant and Resolutions, Forces in Space, Vectors, Operations on Force using Vectors.				
<b>Week 2</b>				Moment of Force, Varignon's Theorem, Couple and its Properties, Resultant of a Spatial Force System,				
<b>Week 3</b>				Equilibrium of a Particle, External & Internal Forces, Equilibrium of a Rigid Body, Types of Supports. Structural Members and Beams, Reactions of Beams. Practice problems on Beams, blocks, Spheres, ladders, etc				
<b>Week 4</b>				Practice problems on different systems in Equilibrium.				
<b>Week 5</b>				Properties of Lines, Areas and Solids: Centre of Gravity, Centroid of Lines (Basic and Composite Areas), Built-Up Sections. Introduction to Moment of Inertia.				
<b>Week 6</b>				Moment of Inertia, radius of gyration, Product of Inertia, Principal axis and Principal Moment of Inertia.. Practice problems on different cross-sections				
<b>Week 7</b>				Brief over view on the prerequisites of Trusses, Introduction to Trusses and Frames, Types of Trusses, Two force and three force members, Determinateness of Truss, Rigid and Non Rigid Frames				
<b>Week 8</b>				Introduction to Method of Joints, Practice problems on trusses using Method of Joints.				
<b>Week 9</b>				Introduction to Method of Sections, Practice problems on trusses using Method of Joints.				
<b>Week 10</b>				Introduction to Friction: Type of Friction, Characteristics of a Dry Friction, Equilibrium on Rough Inclined Place, The Wedge, The Screw Jack, Journal Bearing, Axle Friction, Thrust Bearing, Disc Friction, Clutches				
<b>Week 11 (17<sup>th</sup> -21<sup>st</sup> March, 2025)</b>				<b>Mid-Term</b>				
<b>2<sup>nd</sup> May, 2025</b>				<b>Showing of Mid-Term Answer Sheets</b>				
<b>Week 13</b>				Introduction to Dynamics and its classification, Kinematics & Kinetics of particle in				

	Rectilinear Motion
<b>Week 14</b>	Kinematics & Kinetics of particle in Curvilinear Motion, Projectiles
<b>Week 15</b>	Kinematics & Kinetics of Rigid Body
<b>Week 16</b>	Work & Energy/ Impulse and Momentum concepts and practice problems.
<b>Week 17 (5<sup>th</sup> -9<sup>th</sup> May, 2025)</b>	<b>Revision Week</b>
<b>Week 18 (13<sup>th</sup> – 22<sup>nd</sup> May, 2025)</b>	<b>Major Examinations</b>
<b>29<sup>th</sup> May, 2025</b>	<b>Showing of Major Exams Answer Sheets</b>

**Course Outcomes:**

**CO1: Apply concepts of forces, moments and equilibrium to solve practical problems**

**CO2: Analyse trusses and frictional forces in mechanical systems**

**CO3: Calculate centroids and moment of inertia, and apply these concepts to structural and mechanical systems.**

**CO4: Analyze kinematic and kinetic problems in engineering systems using real-world examples.**

**Recommended Books:**

1. Mechanics for Engineers: Statics and Dynamics, Beer and Johnston, TataMcGraw hill Publishing Company
2. Engineering Mechanics: I. H. Shames, Statics and dynamics
3. Merium and Kraige–Engineering Mechanics, John Wiley & Sons.
4. Sharma, S.M.–Engineering Mechanics, Kirti Publications, Jammu.

**Calendar of Quizzes/Assignment etc. to be provided as per below details and exact dates to be fixed in consultation with other course coordinators to avoid overlap of Quizzes of different courses.**

<b>Component</b>	<b>Date</b>
<b>Quiz-I</b>	<b>27<sup>th</sup> -31<sup>st</sup>, January 2025</b>
<b>Quiz-II</b>	<b>24<sup>th</sup> -28<sup>th</sup> February, 2025</b>
<b>Assignment-I</b>	<b>10<sup>th</sup> -12<sup>th</sup> February, 2025</b>

Mid-Term	17-21 <sup>st</sup> March, 2025
Assignment-II/ Project Submission	21 <sup>st</sup> – 24 <sup>th</sup> April, 2025
Quiz-III	7 <sup>th</sup> – 11 <sup>th</sup> April, 2025
Quiz-IV	28 <sup>th</sup> April-2nd, May, 2025
Major Exam	13 <sup>th</sup> – 22 <sup>nd</sup> May, 2025

Note:

1. One surprise Quiz may be fixed out of Quiz-II, Quiz-III or Quiz-IV.
2. In case of any deviation in evaluation methodology for courses such as AEC/VAC/SEC shall be mentioned accordingly. Thus, same shall be approved by the next BOS of school if not done earlier.

Signature of Course Coordinator :

