SOCIETY OF ST. FRANCIS XAVIER, PILAR'S
FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING
(Approved by AICTE & Affiliated to University of Mumbai)
Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.
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Department of Mechanical Engineering

(Academic Year: 2023-2024)

Class: FE (Electronics and Computer Science)

Course Code: FEC104	
Course Name: Engineering Mechanics	
Course Teacher: Aseem Nevrekar	
Course Outcomes (CO): ***At the End of the course students will be able to***	
FEC104.1	Illustrate the concept of force, moment and apply the same along with the concept of equilibrium in two- and three-dimensional systems with the help of FBD.
FEC104.2	Demonstrate the understanding of Centroid and its significance and locate the same.
FEC104.3	Correlate real life application to specific type of friction and estimate required force to overcome friction
FEC104.4	Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation
FEC104.5	Illustrate different types of motions and establish Kinematic relations for a rigid body
FEC104.5	Analyze particles in motion using force and acceleration, work-energy and impulse momentum principles

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Course Lesson Plan

Sr. No.	Proposed Date	Topics	Delivery Mode	CO	Actual Date	Remark
1	22/08	Information about syllabus, assessment and course outcomes,	Lecture			
2	23/08	Concept of Centroid, First moment of Area	Lecture	FEC104.2		
3	25/08	Centroid of composite plane Laminas	Lecture	FEC104.2		
4	29/08	Centroid of composite plane Laminas	Lecture	FEC104.2		
5	30/09	Centroid of composite plane Laminas	Lecture	FEC104.2		
6	01/09	Resultant of Concurrent Coplanar force system	Lecture	FEC104.1		
7	05/09	Moment of force about a point	Lecture	FEC104.1		
8	06/9	Varignon's Theorem, Resultant of Parallel Coplanar force system.	Lecture	FEC104.1		
9	12/09	Resultant of Non Concurrent-Non Parallel Coplanar force system	Lecture	FEC104.1		
10	13/09	Resultant of Non Concurrent-Non Parallel Coplanar force system	Lecture	FEC104.1		
	19/09 to 23/09	Ganapati Holidays				
11	26/09	Resultant of Non Concurrent-Non Parallel Coplanar force system	Lecture	FEC104.1		
	28/09	Holiday - Anant Chaturdashi				
12	29/09	Resultant of Non Concurrent-Non Parallel Coplanar force system	Lecture	FEC104.1		Cancelled due to Eid
13	03/10	Force-couple system. Distributed Forces in plane.	Lecture	FEC104.1		
14	05/10	Conditions of equilibrium for concurrent forces	Lecture	FEC104.1		
15	06/10	Free body diagrams. Equilibrium of rigid bodies	Lecture	FEC104.1		
	09/10 to 13/10	Unit Test I				
16	17/10	Types of beams, simple and compound beams, type of supports and reactions: Determination of reactions at supports for various types	Lecture	FEC104.1		

		of loads on beams				
17	19/10	Revision of Static Friction, Dynamic/ Kinetic Friction, Coefficient of Friction, Angle of Friction, Laws of friction. Concept of Cone of friction	Lecture	FEC104.3		
18	20/10	Equilibrium of bodies on inclined plane.	Lecture	FEC104.3		
19	24/10	Wedge Friction and Ladder Friction	Lecture	FEC104.3		
20	26/10	Introduction to Kinematics of Particle, Rectilinear Motion	Lecture	FEC104.4		
21	27/10	Motion Under Gravity, Motion of particle with variable acceleration	Lecture	FEC104.4		
22	31/10	Motion of particle with variable acceleration	Lecture	FEC104.4		
23	02/11	General curvilinear motion. Tangential& Normal component of acceleration,	Lecture	FEC104.4		
24	03/11	Motion curves (a-t, v-t, s-tcurves)	Lecture	FEC104.4		
25	07/11	Application of concepts of projectile motion and related numerical	Lecture	FEC104.4		
26	09/11	Translation, Rotation and General Plane motion of Rigid body.	Lecture	FEC104.5		
27	10/11	Instantaneous center of rotation (ICR) for velocity	Lecture	FEC104.5		
	14/11	Holiday - Deepavali Padwa				
	15/11	Holiday - Bhaubeej				
28	16/11	Force and Acceleration: Introduction to basic concepts, D'Alembert's Principle, Inertia force	Lecture	FEC104.6		
29	17/11	Equations of dynamic equilibrium, Newton's second law of motion. (Analysis limited to simple systems)	Lecture	FEC104.6		
	20/11 to 26/11	Unit Test II				
30	28/11	Work Energy principle for a particle in motion, Application of Work-Energy principle to a system consists of connected masses and springs	Lecture	FEC104.6		
31	28/11	Principle of linear impulse and momentum, Impact and collision: Law of conservation of momentum	Lecture	FEC104.6		

32	30/11	Coefficient of Restitution, Direct Central Impact and Oblique Central Impact, Loss of Kinetic Energy in collision of inelastic bodies.	Lecture	FEC104.6		

Text Books:

1. Engineering Mechanics by M. D. Dayal
2. Engineering Mechanics by J. K. Gupta

Reference Books:

1. Engineering Mechanics by R. C.Hibbeler.
2. Engineering Mechanics by Beer &Johnston, Tata McGrawHill
3. Engineering Mechanics by F. L. Singer, Harper& RawPublication
4. Engineering Mechanics by Macklin & Nelson, Tata McGrawHill
5. Engineering Mechanics by ShaumSeries
6. Engineering Mechanics by A K Tayal, UmeshPublication.
7. Engineering Mechanics by Kumar, Tata McGrawHill
8. Engineering Mechanics (Statics) by Meriam and Kraige, WileyBools
9. Engineering Mechanics (Dynamics) by Meriam and Kraige, WileyBools

Course Instructor: Aseem Nevrekar