

Course Modules of the Subject Taught for the Session May- Sept 2022-23 (Even Semester)

Course Syllabi with CO's

Faculty Name : SRIVATHSA H U			Academic Year: 2022-2023				
Department: CIVIL ENGINEERING							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BCIVC203	Engineering Mechanics	Core	-	2	2	-	50
Objectives	This course will enable students to 1. To develop students' ability to analyze the problems involving forces, moments with their applications. 2. To analyse the member forces in trusses 3. To make students to learn the effect of friction on different planes 4. To develop the student's ability to find out the centre of gravity and moment of inertia and their applications. 5. To make the students learn about kinematics and kinetics and their applications						
Topics Covered as per Syllabus							
Module 1							
Resultant of coplanar force system: Basic dimensions and units, Idealisations, Classification of force system, principle of transmissibility of a force, composition of forces, resolution of a force, Free body diagrams, moment, Principle of moments, couple, Resultant of coplanar concurrent force system, Resultant of coplanar non-concurrent force system, Numerical examples. 10 Hours							
Module 2							
Equilibrium of coplanar force system: Equilibrium of coplanar concurrent force system, Lami's theorem, Equilibrium of coplanar parallel force system, types of beams, types of loadings, types of supports, Equilibrium of coplanar non-concurrent force system, support reactions of statically determinate beams subjected to various types of loads, Numerical examples 10 Hours							
Module 3							
Analysis of Trusses: Introduction, Classification of trusses, analysis of plane perfect trusses by the method of joints and method of sections, Numerical examples. Friction: Introduction, laws of Coulomb friction, equilibrium of blocks on horizontal plane, equilibrium of blocks on inclined plane, ladder friction, wedge friction Numerical examples. 10 Hours							
Module 4							
Centroid of Plane areas: Introduction, Locating the centroid of rectangle, triangle, circle, semicircle, quadrant and sector of a circle using method of integration, centroid of composite areas and simple built up sections, Numerical examples. Moment of inertia of plane areas: Introduction, Rectangular moment of inertia, polar moment of inertia, product of inertia, radius of gyration, parallel axes theorem, perpendicular axis theorem, moment of inertia of rectangular, triangular and circular areas from the method of integration, moment of inertia of composite areas and simple built up sections, Numerical examples. 10 Hours							
Module 5							
Kinematics:							
Linear motion: Introduction, Displacement, speed, velocity, acceleration, acceleration due to gravity, Numerical examples on linear motion Projectiles: Introduction, numerical examples on projectiles. Kinetics: Introduction, D'Alembert's principle of dynamic equilibrium and its application in-plane motion and connected bodies including pulleys, Numerical examples 10 Hours							
List of Text Books							
1. Bansal R. K., Rakesh Ranjan Beohar and Ahmad Ali Khan, Basic Civil Engineering and Engineering Mechanics, 2015, Laxmi Publications. 2. Kolhapure B K, Elements of Civil Engineering and Engineering Mechanics, 2014, EBPB							
List of Reference Books							
1. Beer F.P. and Johnston E. R., Mechanics for Engineers, Statics and Dynamics, 1987, McGraw Hill.							

2. Irving H. Shames, Engineering Mechanics, 2019, Prentice-Hall. 3. Hibbler R. C., Engineering Mechanics: Principles of Statics and Dynamics, 2017, Pearson Press. 4. Timoshenko S, Young D. H., Rao J. V., Engineering Mechanics, 5th Edition, 2017, Pearson Press. 5. Bhavikatti S S, Engineering Mechanics, 2019, New Age International 6. Reddy Vijaykumar K and Suresh Kumar K, Engineering Mechanics, 2011, BS publication		
URLs:		
1. https://www.youtube.com/watch?v=nGfVTNfNwnk&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT		
2. https://www.youtube.com/watch?v=nkg7VNW9UCc&list=PLOSWwFV98rfKXq2KBphJz95rao7q8PpwT&index=2		
Course Outcomes	1. Compute the resultant of a force system and resolution of a force	L3
	2. Comprehend the action for forces, moments, and other types of loads on rigid bodies and compute the reactive forces	L3
	3. Analyse the frictional resistance offered by different planes	L4
	4. Locate the centroid and compute the moment of inertia of sections	L4
	5. Analyze the bodies in motion	L4
Internal Assessment Marks: 50 (3 Session Tests are conducted for 20 marks during the semester and marks allotted based on average of 3 test and 20 marks assignment, 10 marks Quiz & 10marks seminar).		

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	BCIVC203		TITLE: Engineering Mechanics					Faculty Name:		SRIVATHSA H U			
List of Course Outcomes	Program Outcomes												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO-1	2	3										2	
CO-2	2	3										2	
CO-3	2	3										2	
CO-4	2	3										2	
CO-5	2	3										2	

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution