ENGINEERING MECHANICS

COURSE CONTENT	CODE	SYLLABUS
BASICS OF MECHANICS AND FORCE SYSTEM	1	1.1 Significance and relevance of Mechanics 1.1.1 Applied mechanics 1.1.2 Statics 1.1.3 Dynamics 1.2 Definitions of Space, time, mass, particle, flexible body and rigid body 1.3 Scalar and vector quantity ,Units of measurement (SI units) 1.3.1 Fundamental units 1.3.2 Derived units 1.4 Force 1.4.1 Unit 1.4.2 Representation as a vector and by Bow's notation 1.4.3 Characteristics and effects of a force . 1.5 Law of parallelogram
EQUILIBRIUM	2	2.1 Equilibrium and Equilibrant 2.1.1 Free body and Free body diagram 2.2 Lami's Theorem – statement and explanation 2.2.1 Application for various engineering problems 2.3 Types of beam 2.4 Types of supports (simple, hinged, roller and fixed) 2.5 Types of loads acting on beam (vertical and inclined point load, uniformly distributed load, couple)

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FRICTION	3	3.1 Friction and its relevance in engineering 3.1.1 Types and laws of friction 3.1.2 Limiting equilibrium 3.1.3 Limiting friction 3.1.4 Co-efficient of friction 3.1.5 Angle of friction (only theoy) 3.1.6 Angle of repose (only theoy) 3.1.7 Relation between co-efficient of friction and angle of friction 3.2 Equilibrium of bodies on level surface subjected to 3.2.1 Force parallel to plane 3.2.2 Force inclined to plane
CENTROID AND CENTRE OF GRAVITY	4	4.1 Center of gravity of : Square , Rectangle, Triangle, Circle, Semi-circle and Quarter circle(Noderivation) 4.2 Centroid of composite figures composed of not more than three geometrical figures 4.3 Centre of Gravity of Cube,Cuboid,Cone,Cylinder,Sphere and hemisphere (No derivation)
SIMPLE LIFTING MACHINE	5	5.1 Simple lifting machine 5.1.1 Related terms: load, effort, mechanical advantage 5.1.2 Applications and advantages. 5.1.3 Velocity ratio 5.1.4 Efficiency of machines 5.2 Law of machine 5.3 Ideal machine 5.3.1 Friction in machine 5.3.2 Maximum Mechanical advantage and efficiency