


"PVC" NSSK G.P. BILASPUR at KALOL.		Branch: ME & EE (2 nd Sem.)		Subject- Engg. Mechanics (ES 106)		
SYLLABSE COVERRAGE		Course- Diploma		Duration -3 Years		
		Total Periods - 42 (Th.) + 14 (DCS)		Session : 22 Feb to 15 June, 2023		
Sr no.	Period No's	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-14 (including 3 DCS)	Unit – I Basics of mechanics and force system	Significance and relevance of Mechanics. Applied mechanics. Statics. Dynamics. Space, time, mass, particle, flexible body and rigid body. Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units. Force – unit, representation as a vector and by Bow's notation, characteristics and effects of a force, Principle of transmissibility of force, Force system and its classification. Resolution of a force - Orthogonal components of a force, moment of a force, Varignon's Theorem. Composition of forces – Resultant, analytical method for determination of resultant for concurrent, non-concurrent and parallel co-planar force systems – Law of triangle, parallelogram and polygon of forces.	Applied Mechanics by R.S. Khurmi	A text book of Engineering Mechanics by R.K. Bansal	
2	15-28 (including 3 DCS)	Unit-II Equilibrium	Equilibrium and Equilibrant, Free body and Free body diagram. Analytical and graphical methods of analyzing equilibrium. Lami's Theorem – statement and explanation, Application for various engineering problems. Types of beam, supports (simple, hinged, roller and fixed) and loads acting on beam (vertical point load, uniformly distributed load), Beam reaction for cantilever, simply supported beam with or without overhang – subjected to combination of Point load and uniformly distributed load. Beam reaction graphically for simply supported beam subjected to vertical point loads only.	-----do-----	-----do-----	
3	29-38 (including 3 DCS)	Unit– III Friction	Friction and its relevance in engineering, types and laws of friction, limiting equilibrium, limiting friction, co-efficient of friction, angle of friction, angle of repose, relation between co-efficient of friction and angle of friction. Equilibrium of bodies on level surface subjected to force parallel and inclined to plane. Equilibrium of bodies on inclined plane subjected to force parallel to the plane only.	-----do-----	-----do-----	

4	39-46 (including 3 DCS)	Unit-IV Centroid and centre of gravity	Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle). Centroid of composite figures composed of not more than two geometrical figures. Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere) Centre of Gravity of composite solids composed of not more than two simple solids.	-----do-----	-----do-----
5	47-56 (including 3 DCS)	Unit - V Simple lifting machine	Simple lifting machine, load, effort, mechanical advantage, applications and advantages. Velocity ratio, efficiency of machines, law of machine. Ideal machine, friction in machine, maximum Mechanical advantage and efficiency, reversible and non-reversible machines, conditions for reversibility. Velocity ratios of Simple axle and wheel, Differential axle and wheel, Worm and worm wheel, Simple screw jack.	-----do-----	-----do-----


 Signature of Teacher

Approved	HOD Sign
Date : 20/2/2023	