

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING AND TECHNOLOGY (DIPLOMA PROGRAMMES)									
Programme		Diploma Engineering			Branch/Spec.		Civil Engineering		
Semester		II			Version		1.0.0.0		
Effective from Academic Year			2018-19		Effective for the batch Admitted in			June 2018	
Subject code		1ES202	Subject Name		Engineering Mechanics				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	2	0	5	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50
Pre-requisites:									
Learning Outcome:									
Attend of this course, students will be able to :									
<ul style="list-style-type: none"> <li>• Understand concepts of forces in Static and Dynamics.</li> <li>• Understand mechanical properties of engineering materials.</li> <li>• To apply different laws of science.</li> <li>• To solve Static and Kinetic problems.</li> <li>• To understand geometrical properties such as centroid, etc of sections of different shapes.</li> </ul>									
Theory syllabus									
Unit	Content								Hrs
1	<b>INTRODUCTION</b> <ul style="list-style-type: none"> <li>• Scope of engineering mechanics</li> <li>• Static , Dynamics (a) Kinetics (b) Kinematics</li> <li>• Scalar and Vector quantities</li> <li>• Different systems of units &amp; Conversions</li> </ul>								3
2	<b>COPLANAR CONCURRENT FORCES</b> <ul style="list-style-type: none"> <li>• Understand Co - planar Concurrent Force system, Units of Force, Principles of superposition, Principle of Transmissibility.</li> <li>• Composition &amp; Resolution of Resultant Forces, equilibrium conditions of coplanar Concurrent Forces,</li> <li>• Analytical and graphical method for Law of Parallelogram, Lami's Theorems , Law of Polygon, Law of Triangle.</li> </ul>								10
3	<b>COPLANAR – PARALLEL AND NON–CONCURRENT FORCES</b> <ul style="list-style-type: none"> <li>• Moment, Couple, Principal of Moment , application of Moment &amp; Couple, properties of couple</li> <li>• Equilibrium conditions of Non-coplanar concurrent Forces</li> <li>• Reactions in Beams</li> <li>• Types of Beams, Types of supports, Types of Load on beam</li> </ul>								8
4	<b>CENTROID AND CENTRE OF GRAVITY</b> <ul style="list-style-type: none"> <li>• Centroid</li> <li>• Centroid of Standard shape</li> <li>• Centre of Gravity.</li> <li>• Centre of Gravity of standard solids</li> </ul>								6

	<ul style="list-style-type: none"> <li>• Distinguish between Centroid and Centre of Gravity</li> <li>• Moment area method for finding out Centroid and Centre of Gravity</li> <li>• Compute Centroid &amp; Centre of gravity of 1-D, 2- D and 3-D objects.</li> </ul>	
5	<b>FRICTION</b> <ul style="list-style-type: none"> <li>• Appreciate Friction and its Engineering applications, Angle of Friction , Angle of Repose</li> <li>• Types of friction</li> <li>• Coefficient of friction and its effect.</li> <li>• Laws of Friction</li> </ul>	6
6	<b>WORK, POWER &amp; ENERGY</b> <ul style="list-style-type: none"> <li>• Demonstrate relation between Work, Power &amp; Energy</li> <li>• Work – work done , force displacement diagram , torque , work done by torque</li> <li>• Equation of H.P. in terms of torque and R.P.M.</li> <li>• Engineering Problems on it.</li> <li>• Energy, Kinetic and potential energy &amp; Engineering problems on it</li> </ul>	6
7	<b>SIMPLE MACHINE</b> <ul style="list-style-type: none"> <li>• Types of Simple Machines</li> <li>• Technical terms related to simple machines</li> <li>• Law of Machine</li> <li>• Reversible and Non-reversible machines, Condition of reversible machines</li> <li>• Line sketch of different systems of Pulley Blocks, Different simple machines and their velocity ratio</li> </ul>	6
<b>Practical content</b>		
Practicals are based on above syllabus.		
<b>Text Books</b>		
1	Engineering Mechanics, R. P. Rethaliya, Atul Prakashan	
2		
<b>Reference Books</b>		
1	Engineering Mechanics, R S Khurmi S. Chand , New Delhi	
2	Engineering Mechanics, S.B.Junarkar, Sarita Prakashan	
3	Engineering Mechanics – By D S Kumar	