

CLASS: I.E. (Mechanical/Automobile)		Semester:- <b>VI</b>	
<b>SUBJECT: MACHINE DESIGN - I</b>			
Periods per week. 1 Period of 60 min.	Lecture	04	
	Practical	02	
	Tutorial	--	
		Hours	Marks
Evaluation System	Theory Examination	04	100
	Practical	--	
	Oral Examination	--	<b>25</b>
	Term Work	--	<b>25</b>
	<b>TOTAL</b>		<b>150</b>

Sr. No.	Details	Hrs.
<b>Module 01</b>	Mechanical Engineering Design, Design methods, Aesthetic and Ergonomics consideration in design Material properties and their uses in design Manufacturing consideration in design: tolerances, types of fits, selection of fits Design considerations of casting and forging Basic principles of Machine Design, Modes of failures, Factor of safety, Design stresses, Principle Stresses, Theories of failures Standards, I. S. codes, Preferred Series and numbers.	06
<b>Module 02</b>	Design against static Loads: Cotter joint, knuckle joint, Turn Buckle Bolted and welded joints under eccentric loading. Power Screw - Screw Presses along with the Frame	12
<b>Module 03</b>	Design against Fluctuating Loads Variables stresses, reversed, repeated, fluctuating stresses Fatigue Failure Static and fatigue stress concentration factors Endurance limit - estimation of endurance limit Design for finite and infinite life Soderberg and Goodman design criteria Fatigue design under combined stresses	06
<b>Module 04</b>	Design of shaft - power transmitting, power distribution shafts (excluding crank shaft) under static and fatigue criteria. Keys - Types of Keys and their selection based on shafting condition. Couplings- Classification of coupling. Selection of Standard Bush Pin coupling	10
<b>Module 05</b>	Design of Springs- Helical compression tension springs under static and variable loads , Laminated Springs	06

