

THEORY OF MACHINES LABORATORY

V Semester: ME								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
AMEB20	Core	L	T	P	C	CIA	SEE	Total
		-	-	2	1	30	70	100
Contact Classes: Nil		Tutorial Classes: Nil		Practical Classes: 24			Total Classes: 36	
I. COURSE OVERVIEW: Theory of machines is defined as that branch of engineering science, which deals with the study of relative motion between various parts of a machine and forces which acts on them. The knowledge is very essential for engineer in designing Various parts of a machine.								
II. OBJECTIVES: The course should enable the students to: <ul style="list-style-type: none"> I The Importance of theory of machines and mechanism involved in the day-to-day life, and study of basic mechanisms and inversion mechanisms to form a machine. II The information related design and analysis of mechanisms for a specific type of motion in a machine. III The developmental use of rigid bodies motions and forces for transmission system, machine kinematics. 								
III. COURSE OUTCOMES: After successful completion of the course, students should be able to:								
CO1	Identify the gyroscopic effect for the real time applications of ships, aero planes.							Apply
CO2	Examine the life expectancy for ball bearing and their real time application.							Analyze
CO3	Select the appropriate journal bearing for balancing of machine components such as shafts.							Apply
CO4	Build out the inversion mechanism for 4-bar mechanism to form different mechanical components.							Evaluate
CO5	Design the shafts material for calculate the critical speed of shafts							Create
CO6	Choose the balancing techniques for effective balancing of machines and structures.							Create
LIST OF EXPERIMENTS								
Week-1	GOVERNORS							
1. Governor apparatus								
Week-2	GYROSCOPE							
2. Gyroscope apparatus								
Week-3	STATIC FORCE ANALYSIS							
3. Static Force analysis								
Week-4	DYNAMIC FORCE ANALYSIS							
4. Dynamic Force analysis								

Week-5	BALANCING
5. Balancing of reciprocating masses	
Week-6	BEARINGS
6. Journal bearing apparatus	
Week-7	VIBRATIONS
7. Universal vibration apparatus	
Week-8	WHIRLING
8. Whirling of shaft apparatus	
Week-9	MECHANISMS
9. Various commonly used mechanisms and its inversions in machines	
Week-10	DIFFERENTIAL
10. Demonstration of automobile differential gear box.	
Week-11	INDEXING
11. Geneva indexing mechanism.	
Week-12	EXAMINATIONS
Text Books:	
1. Joseph E. Shigley, "Theory of Machines and Mechanisms", Oxford University Press, 4 th Edition, 2010.	
2. Thomas Bevan, "Theory of Machines", Pearson, 3 rd Edition, 2009.	