No	Information of every subject	
1	Unit name:	Theory of Machines II
2	Code:	ME-41015
3	Classification:	Engineering subject
4	Credit value:	3
5	Semester/ Year Offered:	1/2
6	Pre-requisite:	
7	Mode of delivery:	Lecture, Practical
8	Practical/Viva/Classwork/Turorial	30%
9	Mid-term/ final Examination	70%
10	Academic staff teaching unit:	
11	Course outcome of unit: Semester (I) a. Ability to analyze and understand the Inertia forces in reciprocating parts b. Ability to understand the function of flywheels and to study the concepts of turning moment diagram c. Ability to understand the students how to maintain the speed of an engine within specified limits whenever there is a variation of load d. Ability to apply the rotating machine element which gives reciprocating motion to another element known as follower e. Ability to practice individual and team work	
12	Synopsis of unit: The subject theory of machines may be defined as that branch of engineering science, which deals with the study of relative motion between the various parts of a machine, and force which act on then. The knowledge of this subject is very essential for an engineer in designing the various parts of a machine.	
13	Topics and Contact Hours: **15 Inertia Force in Reciprocating Parts** 15. 1 Introduction. 15. 2 Resultant Effect of a System of Forces Acting on a Rigid Body. 15.3 D-Alembert's Principle 15.4 Velocity and Acceleration of the Reciprocating Parts in Engines. 15.5 Klien's Construction. 15.6 Ritterhaus's Construction. 15.7 Bennett's Construction. 15.8 Approximate Analytical Method for Velocity and Acceleration of the Piston. 15.9 Angular Velocity and Acceleration of the Connecting Rod.	

15.10 Forces on the Reciprocating Parts of an Engine Neglecting Weight of the Connecting Rod.
15.11 Equivalent Dynamical System.
15.12 Determination of Equivalent Dynamical System of Two Masses by Graphical Method.
15.13 Correction Couple to be Applied to Make the Two Mass Systems Dynamically Equivalent.
15.14 Inertia Forces in a Reciprocating Engine Considering the Weight of Connecting Rod.
15.15 Analytica

16 Turning Moment Diagram and Flywheel

16.1 Introduction.
16.2 Turning Moment Diagram for a Single Cylinder Double Acting Steam Engine.
16.3 Turning Moment Diagram for a Four Stroke Cycle Internal Combustion Engine.
16.4 Turning Moment Diagram for a Multi cylinder Engine.
16.5 Fluctuation of Energy.
16.6 Determination of Maximum Fluctuation of Energy.
16.7 Coefficient of Fluctuation of Energy.
16.8 Flywheel.
16.9 Coefficient of Fluctuation of Speed.
16.10 Energy Stored in a Flywheel.
16.11 Dimensions of the Flywheel Rim.
16.12 Flywheel in Punching Press.

18 Governor

18.1 Introduction.
18.2 Types of Governors.
18.3 Centrifugal Governors.
18.4 Terms Used in Governors.
18.5 Watt Governor.
18.6 Porter Governor.
18.7 Proell Governor.
18.8 Hartnell Governor.
18.9 Hartung Governor.
18.10 Wilson-Hartnell Governor.
18.11 Pickering Governor.
18.12 Sensitiveness of Governors.
18.13 Stability of Governors.
18.14 Isochronous Governor.
18.15 Hunting.

	18.16 Effort and Power of a Governor. 18.17 Effort and Power of a Porter Governor. 18.18 Controlling Force. 18.19 Controlling Force Diagram for a Porter Governor. 18.20 Controlling Force Diagram for a Spring-controlled Governor. 18.21 Coefficient of Insensitiveness **20 Cams** 20.1. Introduction. 20.2 Classification of Followers. 20.3 Classification of Cams. 20.4 Terms used in Radial cams. 20.5 Motion of the Follower. 20.6 Displacement, Velocity and Acceleration Diagrams when the Follower Moves with Uniform Velocity. 20.7 Displacement, Velocity and Acceleration Diagrams when the Follower Moves with Simple Harmonic Motion. 20.8 Displacement, Velocity and Acceleration Diagrams when the Follower Moves with Uniform Acceleration and Retardation. 20.9 Displacement, Velocity and Acceleration Diagrams when the Follower Moves with Cycloidal Motion. 20.10 Construction of Cam Profiles. 20.11 Cams with SpecifiedContours. 20.12 Tangent Cam withReciprocating RollerFollower. 20.13 Circular Arc Cam with Flatfaced Follower
14	Main references: "Theory of Machines" by R.S.Khurmi, J.K.Gupta Theory of Machines and Machanism, J.E.Shigley, J.J.Uicker, Jr (Chapter 12,13)
15	Additional references: Theory of Machines(Third Edition) S S RATTAN