Course Code	ME 211
Course Title	Mechanics of Machines
No. of Credits	3
Pre-requisites	None
Compulsory / Optional	Compulsory for mechanical engineering

**Aim(s) :** To make the students understand the functions and mechanics of simple machine elements and for them to be able to analyze the motion and forces in mechanisms.

## Intended Learning Outcomes :

On successful completion of the course, the students should be able to;

- 1. Describe the dynamics of a particle in moving frames and write down the governing equations of a system that can be approximated as an interacting set of particles.
- 2. Describe the energy fluctuation in mechanical systems and find the size of a flywheel to maintain the speed fluctuation within prescribed limit.
- 3. Analyze the dynamics of mechanical governors and describe the performance of different types governors under different operating conditions.
- 4. Describe the characteristics and analyze the dynamics of simple power transmission elements.

Time Allocation (Hours) : Lectures 39, Tutorial 4, , Assignment 2, Laboratories 6

## Course content / Course description :

- Kinetics of Particle Motion Concept of Space-Time, mass and conservation of Linear momentum and its relationship to Newton's Laws; The concept of force
- Kinetic energy of a particle in Motion. The meaning of potential energy.
- Turning moment diagrams and Flywheels
- Governors: Classification and types of Governors, Dynamics of Mechanical Governors.
- Couplings
- Belt drive systems, Gear drive systems, Chain drive systems

## Recommended Texts (if any) :

- B. Tatum, Classical Mechanics
- Hannah, J. and Stephens, R.C. Mechanics of Machines: elementary theory and examples
- G.H.Ryder and M.D.Bennett, Mechanics of Machines

Assessment	Percentage
	Mark
Mid – semester examination	20
Lab assignments, Quizzes, Reports	20
End-semester examination	60