Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly West Bengal University of Technology)

SYLLABUS FOR BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

(Effective from academic session 2018-19)

Subject Code : PC-ME691	**Category:** Professional Core Courses
Subject Name : Mechanical Engineering Laboratory (Design) II	**Semester** : Sixth
L-T-P : 0-0-3	**Credit: 1.5**
Pre-Requisites:	

Course Objectives:

To understand the measurement of mechanical properties of materials
To understand the deformation behaviour of materials
To understand the kinematic and dynamic characteristics of mechanical devices

Course Contents (12 experiments/ problems/ studies are to perform):

1. Uniaxial tension test on mild steel rod
2. Torsion test on mild steel rod
3. Impact test on a metallic specimen
4. Brinnell/ Vickers and Rockwell hardness tests on metallic specimens
5. Bending deflection test on beams
6. Strain measurement using Rosette strain gauge, or like.
7. Microscopic examination of heat-treated and untreated metallic samples
8. Determination of velocity ratios of simple, compound, epicyclic and differential gear trains
9. Studying kinematics of four bar, slider crank, crank rocker, double crank, double rocker and oscillating cylinder mechanisms
10. Studying kinematics of typical mechanisms like pantograph, some straight line motion mechanisms, wiper, drafter, etc.
11. Motion studies of different cams & followers
12. Single degree of freedom Spring-mass-damper system: determination of natural frequency and damping coefficient
13. Determination of torsional natural frequency of single and double rotor systems- undamped and damped natural frequencies
14. Studying machine vibration using sensor
15. Solving simple balancing problems experimentally

Course Outcomes:

Students who have undergone the course will be able to understand the measurement of mechanical properties of materials and will be able to characterize the dynamic behavior of mechanical system.