B.TECH – I (ALL BRANCHES)

AMD 204 DEF and 104 ABC ENGINEERING MECHANICS

THEORY:

1. Introduction, Force, Particle, Rigid Body, Systems of Forces.
2. Coplanar Concurrent Forces, Determination of Resultant, Equilibrium, Equilibrant, Forces in Space and their Equilibrium.
3. Coplanar Non-concurrent Force Systems, Moments about Points & Axes. Equilibrium, Non-coplanar Non-concurrent Forces.
4. Determination of Reaction of Beams for Points Loads, Uniformly distributed Loads and Uniformly Varying Loads.
5. Centroids and Moment of Inertia.
6. Method of Joints and Method of Sections of Truss Analysis.
7. Friction, Wedge, Ladder and Belt Friction.
8. Work Energy Principle, D'Alembert's Principle, Impulse Momentum, Impact of Elastic Bodies.
9. Vibrations, Equation of Motion of Single Degree of Freedom, Introduction to Free and Forced Vibrations, Earthquake Induced Waves.

PRACTICALS:

Based on the theory course prescribed above.

REFERENCES:

1. Bear F. P. and Johnston E. R., Vector Mechanics forEngineers, Tata McGraw-Hill In. Delhi.
2. Desai J. A. and Mistry B. B., Engineering Mechanics- Statics & Dynamics, Popular Prakashan, Surat
3. Shah H. J. and Junarkar S. B., Applied Mechanics, Charotar Publication, Anand.
4. Bhavikatti S. S. and Rajashekarappa K. G., Engineering Mechanics, Wiley Eastern Ltd.
5. Hibbeler R. C., Engineering Mechanics- Statics & Dynamics, Macmillan Publication Co.