AM1100 - Engineering Mechanics - Syllabus

Course Content:

Equilibrium of rigid bodies, free body diagram, Analysis of beams and trusses, Equilibrium of continuous systems -derivation of relation between load, shear force and bending moment. Energy conservation in rigid bodies -potential energy and elastic energy. Virtual work in multibody assemblies. Coulomb Friction and Belt friction.

Lumped mass models in Dynamics -Particle motion in cylindrical coordinates, engineering applications of central force motion. Kinetics of rigid bodies -translation and rotation motion of a rigid body, relative motion with translating and rotating axes and Coriolis acceleration. Kinematics of rigid bodies -3-D properties of sections, angular momentum of rigid bodies and energy relations for rigid bodies. Mechanical vibrations of single degree of freedom systems - free vibration of rigid bodies, general equations of motion and response to forced sinusoidal loading.

Text Book:

Meriam J.L and Kraige L.G., Engineering Mechanics, Volume I - statics, Volume II - dynamics, John Wiley & Sons, New York.

Reference Books:

1. Beer F.P. and Johnston E.R., Vector Mechanics for Engineers - Volume I - Statics, Volume II - Dynamics, McGraw Hill, New York.
2. Shames L.H., Engineering Mechanics, Prentice HaII, New Delhi