



SYLLABUS FOR SOLID MECHANICS (XE: SECTION D)

(Optional Section)

Equivalent force systems; free-body diagrams; equilibrium equations; analysis of determinate trusses and frames; friction; simple relative motion of particles; force as function of position, time and speed; force acting on a body in motion; laws of motion; law of conservation of energy; law of conservation of momentum.

Stresses and strains; principal stresses and strains; Mohr's circle; generalized Hooke's Law; thermal strain; theories of failure. Axial, shear and bending moment diagrams; axial, shear and bending stresses; deflection (for symmetric bending); torsion in circular shafts; thin cylinders; energy methods (Castigliano's Theorems); Euler buckling.

Free vibration of single degree of freedom systems.