SUBJECT NO-CE31210, SUBJECT NAME- THEORY OF ELASTICITY AND PLASTICITY

LTP- 3-0-0,CRD- 3

SYLLABUS :-

Three dimensional stress and strain analysis, stress - strain transformation, stress invariants; equilibrium and compatibility equations, boundary conditions; Two dimensional problems in Cartesian, polar and curvilinear co-ordinates, bending of a beam, thick cylinder under pressure, complex variable, harmonic and bi-harmonic functions; Torsion of rectangular bars including hollow sections, bending problems; Energy principles, variational methods and numerical methods. Plasticity : Basic concepts and yield criteria; Equations of plasticity, elasto-plastic analysis of torsion and bending problems, torsion of a bar of oval section (Sokoloskey s method), problems of spherical and axial symmetry, slip lines and plastic flow, strain hardening and FEM applications.