SUBJECT NO-ME31013, SUBJECT NAME- MECHANICS OF SOLIDS

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Prerequisite â MechanicsIntroduction of theory of elasticity- Analysis of Stress and Strain, Stress equation of equilibrium, Compatibility equations, Stress-Strain Relations, Solution of elasticity equations-stress function approach. Theories of failure- Yield criteria. Energy methods- Generalized forces and displacements, Reciprocal Theorem, Maxwell-Betti-Raleigh reciprocal theorem, Castiglianoâs theorems, Theorem of virtual work. Bending of Beams- Straight and asymmetrical bending, Shear center, bending of curved beams, Deflection of thick curved beams. Axisymmetric problems- Thick walled cylinders subjected to internal and external pressures-Lameâs equation, Stresses in composite tubes-Shrink fits, Rotating discs with uniform and variable thickness, Rotating shafts and cylinders. Columns and struts- Eulerâs Buckling load, Different end conditions, Beam columns, Energy methods in buckling problems.