PPE3I103 STRENGTH OF MATERIALS

Module I.BASICS AND AXIAL LOADING

StressandStrain–Hooke'sLaw–Elasticconstantsandtheir relationship–Staticallydeterminatecases-staticallyindeterminatecases–compositebar.Thermal Stress due to freely falling weight.

Module II STRESSES IN BEAMS

Shear forceandbendingmomentdiagramsforsimplysupportedandcantileverbeams-Bendingstressesinstraightbeams-Shearstressesinbendingofbeamswithrectangular, I& T etc cross sections-beams of uniform strength

Module III DEFLECTION OF BEAMS

Doubleintegrationmethod–McCauley'smethod-Areamoment method–Conjugate beam method-Principle ofsuper position-Castigliano's theorem and its application

Module IVTORSION

Torsionofcirculershafts-shearstressesandtwistinsolidandhollowcircularshafts–

References Books:

1. *R.S. Khurmi, Applied Mechanics and Strength of Materials S.Chand & Co., (6th ed), New Delhi, 1987.*
2. *P.N. Singh and I.K.Jha, Elementary Mechanics and Solids, Wiley Eastern, New Delhi.*
3. *Timoshenko, Strength of Materials*
4. *Singer, Strength of Materials*