

Topics

1. Concept of stress and axial loading (10 hours).....Exercise-1 (30 points)
 - Normal and shear stress and components of stress
 - Normal strain, stress-strain diagram, and Hooke's law
 - Elastic versus plastic behavior
 - Statically indeterminate problems
2. Torsion (9 hours).....Exercise-2 (30 points)
 - Elastic deformations in circular shafts
 - Plastic deformations in circular shafts
 - Torsion of noncircular members

Midterm (1) (400 points)

3. Pure bending (11 hours).....Exercise-3 (30 points)
 - Elastic deformation of symmetric member in pure bending
 - Plastic deformations in pure bending
 - Unsymmetric bending
4. Shearing stresses (12 hours)..... Exercise-4 (30 points)
 - Determination of the shearing stresses in a beam
 - Shearing stresses in thin-walled members
 - Plastic deformations
 - Shear center

Midterm (2) (480 points)

Total Grade =1000 points

Total sessions = 32 sessions

Total hours =48 hours

More than 8 hours absence means withdrawal from the course.

50 bonus points are considered for attendance.

References

1. F.P. Beer, E.R. Johnston, D.F. Mazurek, Ph.J. Cornwell, and E.R. Eisenberg, Mechanics of Materials, 6th Ed.
2. R.C. Hibbeler, Mechanics of Materials, 8th Ed.