MECH 4101: Mechanics of Deformable Solids
Lectures: 3 hours per week
Winter Term
Instructor: Professor C.L. Tan

Course Outline


3. Stress Functions: Airy=s stress functions and the biharmonic equation; solution by polynomials. Use of polar coordinates; practical applications; stress concentrations.

4. Shock or Impact Loading: Energy method for 1-D systems; impact factor; effects of geometry and yielding. Stress wave propagation. Changes in material properties under impact loads.

5. Elasto-Plastic Analysis: Review of yield criteria; idealisation of material yield behaviour. Elasto-plastic bending of beams; residual stresses and spring-back analysis; strain-hardening. Elasto-plastic deformation of pressurised thick-walled cylinders; residual stresses and autofrettage.


Assessment

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<tr>
<th>Examination</th>
<th>Percentage</th>
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<tr>
<td>Mid-Term Examination</td>
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<tr>
<td>Final Examination</td>
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References