Topics and Chapter Sections Covered for Test 2

Related homework: 5–7

1 Review
You should understand:
1. Ductile and Brittle failure theories
2. Fracture Mechanics
3. Displacements, especially for application to indeterminate structures

2 Chapter 6 - Static Failure
You should know:
1. Maximum shear stress (Tresca) failure theory
2. Maximum distortion energy (von Mises) failure theory
3. Maximum normal stress failure theory
4. Brittle Coulomb Mohr failure theory
5. How to draw the failure surfaces for the above failure theories
6. What the three crack modes are, especially mode I
7. How to compute the stress intensity factor ($K_I$)
8. How to determine if uncontrolled crack growth will occur
9. How to determine the stress intensity modification factor ($\beta$)

3 Chapter 5 - Displacements
You should know:
1. How to compute displacements in statically determinate bars and shafts
2. How to compute displacements in statically determinate beams using integration, beam tables and superposition
3. How to use the displacement equations to solve statically indeterminate problems with axial, torsional and bending loads
4. How to use superposition for statically indeterminate problems
5. How to use Castiglano’s theorem for computing displacements
6. How to use Castiglano’s theorem for solving statically indeterminate problems