

Lecture 37 - Final Exam Review

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schedule

- 6 May - Final Review, HW11 Due
- 8 May - Final Review
- 15 May 1:00 - 2:50 - Final Exam

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exam format

- Same format as previous exams, but about twice as long (7-9 problems)
- Equations/references provided will also be the same, with the addition of stress concentration factor charts
- Comprehensive, weighted (slightly) to new material

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content

- Chapter 1 - stress
 - Equilibrium
 - Definition of stress
 - Average normal and shear stress
 - Allowable stress/ safety factors

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- Chapter 2 - Strain
 - Deformation
 - Strain

- Chapter 3 - Mechanical Properties
 - Stress-strain diagram
 - Strain energy
 - Poisson's ratio

- Chapter 4 - Axial Load
 - Saint Venant's Principle
 - Superposition
 - Statically Indeterminate
 - Thermal Stress

- Chapter 5 - Torsion
 - The torsion formula
 - Power transmission
 - Angle of twist
 - Statically indeterminate torsion

- Chapter 6 - Bending
 - Shear and moment diagrams
 - Bending deformation
 - Flexure formula

- Chapter 7 - Transverse Shear
 - The shear formula
 - Shear flow in built-up members

- Chapter 8 - Combined Loadings
 - Pressure vessels
 - Combined loading

- Chapter 9 - Stress Transformation
 - Plane stress
 - General equations of stress transformation
 - Principal stresses
 - Mohr's circle
 - Maximum shear stress

- Chapter 10 - Strain Transformation
 - Plane strain
 - General equations of strain transformation

- Chapter 12 - Deflection of Beams and Shafts
 - Simple beam theory
 - Discontinuity functions
 - Superposition
 - Statically indeterminate beams and shafts

- Multiple Chapters - Stress concentration
 - Axial
 - Torsional
 - Bending

- Chapter 13 - Buckling
 - Critical load
 - Ideal column with pin supports