Instructor: R. I. Johnson, PhD., S.E., P.E., SECB

Office: A207G Engineering Building – Phone (970) 491-7613 (Don’t leave voicemail)

Office Hours: MWF 8:00 -9:00 am, 10:00-11:00 am, 1:00-2:30 pm and by appointment; many times I may be in the office from 1:00-4:00; if the door is open, I’m available.

Email: bob.johnson@colostate.edu


Learning objectives/goals:

Understand stress: Normal, Direct Shear, Bending, Horizontal Shear and Torsional Shear
Transformation of stress on inclined planes
Understand strain: Normal, Bending, Shear and Thermal
Understand constitutive laws to relate stress to strain and vice versa
Gain the ability to solve indeterminate axial load problems
Be able to calculate cross-sectional properties and be able to use them to relate forces to stress
Be able to solve problems in torsion for determinate and indeterminate shafts
Be able to calculate strains based on section dimensions and given displacements/deflections
Improve your ability to create shear and moment diagrams from beam load diagrams
Gain the ability to calculate beam deflections using both 4th and 2nd order differential equations
Understand buckling capacity of long columns
Gain the ability to analyze thin walled pressure vessels
Understand how to combine stresses and determine principal axial stresses and shear stresses
Gain the ability to use Mohr’s circle to combine shear and normal stresses

There will be six to nine homework problems assigned every week, which will be due one week later. I prefer that questions be asked at the beginning of the class about the homework or any other previously discussed subject so that everyone can have the same answer. You are also expected to go on line and see the MecMovies associated with the subject under discussion; these are actually pretty good and they may be found at:

Web.mst.edu/~mecmovie/

Grading will be as follows:

Homework: 20%
Midterms (3): 48%
Final: 32%

Letter grading:
90-100% A, 80-89% B, 70-79% C, 60-69% D
CIVE 360: MECHANICS OF SOLIDS
FALL 2015

Tentative Syllabus

Topics to be covered in approximate order:

Stress (Chapter 1)
Strain (Chapter 2)
Mechanical Properties/Constitutive Laws (Chapter 3)

Midterm 1 – Tentatively Monday, September 28, 2015
Axially Loaded Members/Deformation/Statically Indeterminate Problems (Chapter 5)
Torsion (Chapter 6)
Beams: Review of Shear & Moment (Chapter 7)

Midterm 2 – Tentatively Monday, October 26, 2015
Beams: Bending and Shear (Chapters 8 & 9)
Beams: Deflections (Chapter 10)
Stress Transformations (Chapter 12)

Midterm 3 – Tentatively Monday, November 16, 2014
Thin-Walled Pressure Vessels (Chapter 14)
Thin-Walled Torsion (Chapter 6)
Combined Loads (Chapter 15)
Columns (Chapter 16)

Fall recess: 11/21/15 through 11/29/15

Final Exam: 12/16/15 from 7:30-9:30 am (yawn) – Room to be determined

Homework Format

See the required homework format posted on Canvas for the correct layout and format of your homework assignments.