CVE 220 MECHANICS OF MATERIALS
Winter 2017
J-Term

Time: M-T-W-Th 9-12
Place: TBA
Instr. Dr. George Tsiatas, BL303 (gt@uri.edu)

Catalog Description:

Mechanical properties of materials; analysis of members under axial, torsional, and transverse loads; stress and strain; beam deflections, and introduction to statically-indeterminate beams and buckling of columns. (cr. 3) Pre: MCE 262.

Course Objectives:

Students who successfully complete CVE 220 will have:

- An understanding of the stress-strain behavior of materials.
- An understanding of the behavior of members under axial loading, torsion and bending.
- An ability to calculate stresses, strains, and deformations of members under axial, torsional and flexural forces as well as under combined loading.
- The ability to solve simple indeterminate problems.
- Understanding of the elastic stability behavior of simple columns.

Required Text:

Also available with vitalsource at: https://bookshelf.vitalsource.com/books/9780134321233/pageid/0

Topics

Jan 3    Axially Loaded Members, thermal effects, indeterminate problems.
Jan 4    Torsion. **EX1.**
Jan 5    Beams, shear forces and bending moments.
Jan 9  Shear force and bending moment diagrams. Review of centroids and moments of inertia. Bending stresses. **EX2.**
Jan 10  Bending and shear stresses.
Jan 11  Beam stresses. Composite beams. Combined stresses. **EX3.**
Jan 12  Stress transformations. Mohr’s circle.
Jan 16  No Class - Martin Luther King, Jr. Day
Jan 17  Mohr’s circle. Beam Deflections. **EX4.**
Jan 18  Energy methods. Column buckling.
Jan 19  Review. **Final Exam.**

**Evaluation**

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Four Exams</td>
<td>60%</td>
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<tr>
<td>Final Exam</td>
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<td>Online Quizzes</td>
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**Notes:**

- All in class exams including the final exam are closed book. A sheet with formulas will be provided. Absolutely no electronic devices including cellphones, ipods, iPhones, Zunes etc can be used in the examination room.
- The final exam is comprehensive and in a multiple choice format.