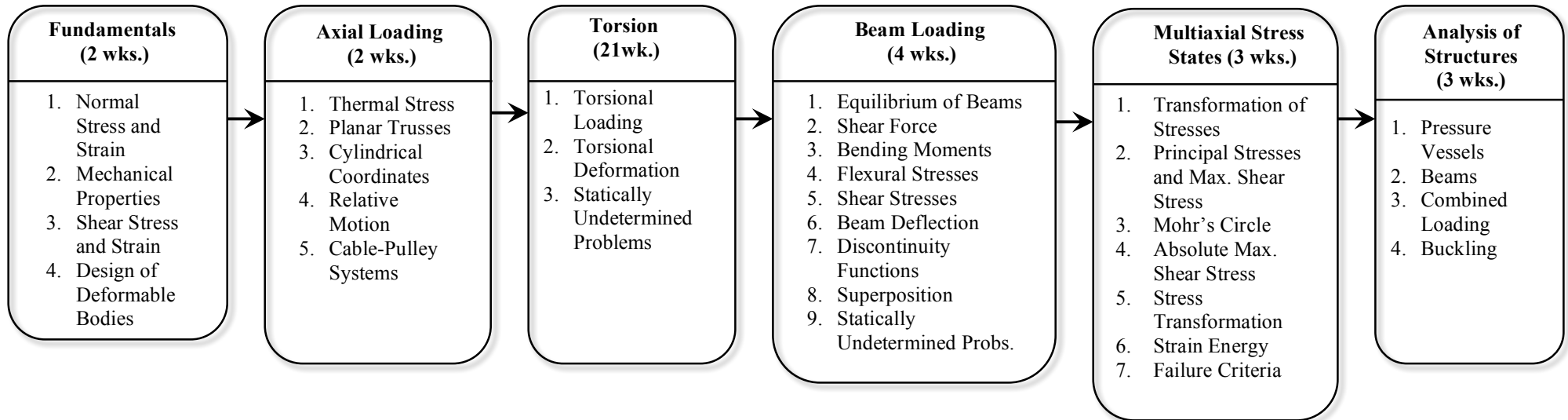


**ME 32300**  
**MECHANICS OF MATERIALS**

**Course Outcomes** [Related ME Program Outcomes in brackets]

1. Introduce concepts of stress, strain, failure and strain energy. [1].
2. Learn how to analyze structures under axial and torsional loading conditions. [1]
3. Learn how to analyze stresses and deflections of a beams experiencing a combination of internal transvers shear and bending moment [1].
4. Learn how to analyze structures experiencing combined loads and characterize multiaxial stress states. [1]
5. Learn how to analyze buckling. [1]
6. Reinforce a systematic approach to problem solving. [1]
7. Foster effective mathematical and graphical communication skill. [4]
8. Cultivate ethical engineering decisions. [4]



<b>COURSE NUMBER:</b> ME 32300		<b>COURSE TITLE:</b> Mechanics of Materials	
<b>REQUIRED COURSE OR ELECTIVE COURSE:</b> Required		<b>TERMS OFFERED:</b> Fall and Spring	
<b>TEXTBOOK/REQUIRED MATERIAL:</b> Krousgrill, C.M., Zhao, K. and Raman, A., <i>Mechanics of Materials: A Lecturebook</i>		<b>PRE-REQUISITES:</b> ME 27000 – Basic Mechanics I or equivalent	
<b>COORDINATING FACULTY:</b> Charles M. Krousgrill			
<b>COURSE DESCRIPTION:</b> Integrated approach to mechanics of materials. Topics include: stress and strain in structural elements; extension; torsion and bending of members; thermal stress; pressure vessels; static indeterminacy, stress transformation, Mohr’s circle, strain energy, failure criteria, buckling.		<b>COURSE OUTCOMES</b> [Related ME Program Outcomes in brackets]:	
<b>ASSESSMENTS TOOLS:</b>		<ol style="list-style-type: none"> <li>1. Introduce concepts of stress, strain, failure and strain energy. [1].</li> <li>2. Learn how to analyze structures under axial and torsional loading conditions. [1]</li> <li>3. Learn how to analyze stresses and deflections of a beams experiencing a combination of internal transverse shear and bending moment [1].</li> <li>4. Learn how to analyze structures experiencing combined loads and characterize multi-axial stress states. [1]</li> <li>5. Learn how to analyze buckling. [1]</li> <li>6. Reinforce a systematic approach to problem solving. [1]</li> <li>7. Foster effective mathematical and graphical communication skill. [4]</li> <li>8. Cultivate ethical engineering decisions. [4]</li> </ol>	
<b>ASSESSMENTS TOOLS:</b>			
<ol style="list-style-type: none"> <li>1. Weekly homework.</li> <li>2. Periodic announced or unannounced quizzes during lecture periods.</li> <li>3. Two, one-hour exams.</li> <li>4. One comprehensive final exam.</li> </ol>			
<b>PROFESSIONAL COMPONENT:</b>		<b>RELATED ME PROGRAM OUTCOMES:</b>	
<ol style="list-style-type: none"> <li>1. Engineering Topics: Engineering Science – 3 credits (100%)</li> </ol>		<ol style="list-style-type: none"> <li>1. Engineering fundamentals</li> <li>2. Engineering design</li> <li>3. Communication skills</li> <li>4. Ethical/Prof. responsibilities</li> <li>5. Teamwork skills</li> <li>6. Experimental skills</li> <li>7. Knowledge acquisition</li> </ol>	
<b>COMPUTER USAGE:</b> None			
<b>COURSE STRUCTURE/SCHEDULE:</b>			
Lecture - 3 days per week at 50 minutes for 16 wks.			
<b>PREPARED BY:</b> Charles M. Krousgrill (Updated by J.M. Gibert)		<b>REVISION DATE:</b> December 9, 2018	