ENT 272                                    STRENGTH OF MATERIALS    3_____
Course Number    Title            Credit hours

DESCRIPTION:  
This course provides a comprehensive coverage of the important topics in strength of materials with an emphasis on engineering applications, problem solving and mechanical system analysis. It is the intention of this course to provide an appropriate coverage of principles of strength of materials, and problem-solving and design approach that is useful for the practicing designer or engineer. There is a heavy emphasis on the applications of the principles of strength of materials to mechanical problems while providing a firm foundation of understanding of those principles.

CONTACT HOURS PER WEEK: 2 Lecture, 1 Lab hours per week.

REQUIREMENT:  This is a required course in the program Mechanical Engineering Technology associate degree programs.

PREREQUISITE(S):  ENT 271 Mechanics I: Statics .

COURSE COORDINATOR:  Associate Professor Gary S. Drigel

Additional information is on the Niihka Site

COURSE OBJECTIVES
Upon Completion of this course, students will be able to:

1. Calculate internal stress, moment of inertia and deflection of a part or structure.
2. Compute axial, torsion, and shear stresses and associated deflection for a part or structure.
3. Make design decisions about material selection, shape and size for a part or structure.
4. Draw shear force and bending moment diagrams.
5. Apply elementary stress analysis and mechanical properties of materials for the purpose of designing simple structural and machine members

OUTCOMES ADDRESSED:  This is course is a constitute course and is therefore not directly assessed.  It will contribute to Outcome 3 “The ability to apply creative technical skills to the analysis and design of mechanical components and systems.”

METHOD OF EVALUATION:  
ENT Department Standard for awarding letter grades: Each faculty member will use the following percentage scale in assigning letter grades in their courses, with the following allowances:
- the end (or ends) of any range can be adjusted by 1 point (+/-)
- the assignment of the D- or F may deviate by a few points (2-3) from the values shown
- faculty may elect to not use +/- grades

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**TOPICAL OUTLINE:**

Chapter 1. Basic Concepts in Strength of Materials
Chapter 2. Design Properties of Materials
Chapter 3. Direct Stress, Deformation and Design
Chapter 4. Torsional Shear Stress and Torsional Deformation
Chapter 5. Shearing Forces and Bending Moments in Beams
Chapter 6. Centroids and Moments of Inertia of Areas
Chapter 7. Stress Due to Bending
Chapter 8. Shearing Stresses in Beams
Chapter 9. Deflection of Beams
Chapter 11. Buckling of columns

**METHOD OF PRESENTATION:**

Course is delivered in traditional classroom lecture and lab sessions.

**MIAMI UNIVERSITY LEARNING COMMUNITY**

Miami University is committed to fostering a supportive learning environment for all students irrespective of individual differences in gender, race, national origin, religion, handicapping condition, sexual preference, or age. Students should expect, and help create, a learning environment free from all forms of prejudice. Disparaging comments, sexist or racist humor, or questioning the academic commitment of students based upon these individual differences are behaviors that undermine our learning community. If such behaviors occur in class, please seek the assistance of your instructor or department chair.

Prepared by: Gary S. Drigel 3/2013