Fall 2015

ENCE 2351

Engin Egeseli

University of New Orleans

Follow this and additional works at: http://scholarworks.uno.edu/syllabi

Recommended Citation

http://scholarworks.uno.edu/syllabi/335

This Syllabus is brought to you for free and open access by ScholarWorks@UNO. It has been accepted for inclusion in University of New Orleans Syllabi by an authorized administrator of ScholarWorks@UNO. For more information, please contact scholarworks@uno.edu.
Civil Engineering 2351

MECHANICS OF MATERIALS

CATALOG DESCRIPTION

ENCE 2351  Mechanics of Materials

Offered each semester. Prerequisite: Civil Engineering 2350. Simple stress and strain; shear, moment, stresses, and deflections in beams; combined stresses; thermal stresses; statically indeterminate members; columns.

PREREQUISITES

Credit for Statics (ENCE 2350)

TEXTBOOKS AND OTHER MATERIAL


COURSE OBJECTIVES

1. Identify and define the six components of stress and six components of strain at a point in a 2D or 3D structure.
2. Calculate forces, stresses, and strains, in axially loaded determinate or simple indeterminate structures.
3. Calculate torsions, stresses and strains in circular shafts.
4. Calculate areas, centroids, and moments of inertia for simple and composite cross-sections.
5. Calculate reactions, axial forces, and stresses, shear and moment diagrams, bending and shear stresses for 2D beams and simple frames.
6. Transform stresses using Mohr’s circle.
7. Calculate the Euler Buckling Load for columns.

COURSE GOALS

1. To give civil, mechanical, and marine engineering students a basic knowledge of the types of stress and strain caused by tension, compression, torsion, bending, shear, internal pressure, temperature change, or a combination of these effects.
2. To reinforce student’s understanding of static equilibrium.
3. To increase student’s problem solving abilities.
4. To develop the student’s ability to produce written, easily followed, and checked documentation.

COURSE TOPICS AND SCHEDULE

1. Concepts of stress and strain, axial stress and strain
2. Torsion
3. Flexure and shear  
4. Transformation of stress  
5. Stresses due to combined loads  
6. Beam deflections  
7. Column buckling