

COURSE SYLLABUS

ENGR 2332 Mechanics of Materials

COURSE INFORMATION

Credit Hours: 4

Term: Spring 2019

Time

Lecture: Tu-Th 10:00 am -11:20 am

Lab: (1) Tu 11:30 am -2:20 pm

(2) Th 11:30 am -2:20 pm

Classroom

Lecture: NTDP D215

Lab: (1) NTDP F162

(2) NTDP F187

INSTRUCTOR INFORMATION

Name: Dr. Saman Rashidyan

Office: Discovery Park F115V

Office Hours: M 9:30 am-12:30 pm or by appointment

Phone: (940) 369-5263

Email: Saman.Rashidyan@unt.edu

COURSE DESCRIPTION

Relationships among loads placed on structural components; shape and size of components; resultant stresses, strains and deflections of components.

COURSE OBJECTIVES

By the end of the course, you will be able to:

1. Understand the concepts of stress and strains, and the influence of loading direction on deformation. (a,b,f, l,m,n)
2. Understand the impact of applied loads on design. (a,b,f, l,m,n)
3. Know the final extensions on axially loaded members subjected to tensile or thermal stresses. (a,b,f,l, m, n)
4. Understand the influence of torsional stresses on deformation of circular bars. (a,b,f, l,m,n)
5. Understand shear force and bending moments diagrams. (a,b,f,l,m,n)
6. Understand the principal stress based on applied loads. (a,b,f,l,m,n)
7. Understand the influence of location of loads on the deflection. (a,b,f,l,m,n)
8. Understand the effects of end conditions on deformation. (a,b,f,l,m,n)

STUDENT LEARNING OUTCOME

- a) Calculate stress-strains relations for typical engineering applications. (1, 2, 3, 7, 8)
- b) Analyze tensile loading of members. (1, 2, 3)
- c) Analyze torsion in beams. (1, 2, 4)
- d) Analyze beams in deflection. (1, 5, 7)
- e) Calculate principal stresses and angular dependence of stress. (6)
- f) Evaluate buckling of columns. (1, 6)
- g) Analyze columns under compression. (8)

MATERIALS

Required Textbook and Associated Software

Philpot, Timothy A., Mechanics of Materials: An Integrated Learning System, 4th Edition, Publisher: Wiley. Course ID: 689222

Course outline is based on this textbook.

If you do not want to buy a hardcopy of the book, you can get an electronic copy of the book by buying the WileyPLUS stand alone.

TENTATIVE COURSE OUTLINE

The course outline may be subjected to modifications with notice.

Week	Topic	Book Chapter
1	Introduction, Normal, Shear and Bearing Stress	1
2	Normal, Shear and Bearing Stress Deformation and Strain	1 2
3	Mechanical Properties of Materials	3
4	Design Concepts	4
5	Axial Deformation	5
6	Torsion	6
7	Review-Exam #1 (February 28)	
8	Equilibrium of Beams	7
9	Spring Break	
10	Bending	8
11	Bending Shear Stress in Beams	8 9
12	Shear Stress in Beams	9
13	Beam Deflections	10
14	Review-Exam #2 (April 18)	
15	Stress Transformation	12
16	Strain Transformation Review	13
17	Final Exam (May 7)	

COURSE REQUIREMENTS

Exams

Exams will be based on text books, handouts, class exercises, homework, class lectures and class discussions. Students are responsible for all text material, regardless of whether we review the text material in class or not.

Missed Exams: You will be allowed to make up missed exams only if you have a documented university excused absence. Make-up exams may not be the same as the original.

Homework

Homework is due one week, unless otherwise noted.

Late Homework: It is the students' responsibility to turn in all assignments on time and to develop the necessary work habits that are expected in the workforce such as meeting deadlines. Homework cannot be accepted late as it is controlled by the software.

Lab Assignments

Policies will be announced by TA.

GRADING

Attendance and effective participation	5
Lab assignments	20
In-class assignments	10
Homework	15
Exam #1	15
Exam #2	15
Final Exam	20
Total	100

GRADE DISTRIBUTION

90 – 100 and higher	A
80-89	B
70-79	C
60-69	D
Below 60	F

DISABILITIES ACCOMMODATION

Any accommodations for differing abilities will be made for this course as per the policies and determination of the Office of Disability Accommodation: <http://disability.unt.edu/>

ADDITIONAL POLICIES

- Please turn off your cell phones prior to class.
- Using cell phones and personal computers are not allowed during exams.