

California State University, Northridge
Department of Civil Engineering and Applied Mechanics
CE340: Strength of Materials
Summer 2017

Course	Time	Location
CE340	MTWR 14:00 – 15:35	JD3510

Instructor: Nazaret Dermendjian, Ph.D., P.E.
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Office Hours: Mondays through Thursdays 11:00 – 12:30

Catalog Description:

Analysis of the stresses and deflections in members and basic structural systems. Axial, torsional, bending and shear stresses and deflections. Introduction to structural stability. Design of structural components. (Design units: 0.5)

Course Prerequisite: CE240 – Engineering Statics
MATH280 – Applied differential Equations

Recommended

Textbook: Mechanics of Materials, R.C. Hibbeler,
Prentice Hall
ISBN-10 1-256-58892-X

Course Objectives:

There are ten basic objectives in this course:

1. Review of area properties, and shear and bending moment diagrams.
2. Study of normal stresses: axial and bending.
3. Study of shear stresses: shear and torsion.
4. Study of combined stresses.
5. Design of beams.
6. Study of stress transformation.
7. Study of deflection of beams,.
8. Study of columns: buckling, design.
9. Study of energy methods.
10. Preparing the students for Mechanics portion of the FE/EIT exam.

Student Learning Outcomes:

Students in CE340 are expected to attain and demonstrate the following program outcomes:

- (a) an ability to apply knowledge of mathematics, science and engineering.
- (c) an ability to design a system, component or process to meet desired needs.
- (l) a proficiency in a minimum of four (4) recognized major civil engineering areas.
- (m) an ability to perform civil engineering design by means of design experiences integrated throughout the professional component of the curriculum.

Program Educational Objectives:

The program outcomes demonstrated by students in CE340 will foster attainment of program educational objectives

1. Graduates will accept increasing levels of responsibility over time and obtain their desired professional registration.
2. Graduates will continue further studies in engineering and other professional disciplines as appropriate to their careers.
3. Graduates will develop creative engineering solutions to project challenges that are cost effective and environmentally sensitive.

Topics Covered:

Topics Covered	Text Chapters	Course Objectives	Student Learning Outcomes	Program Educational Objectives
Review of area properties	App. A	1, 10	a,c	1,2
Review of shear and bending moment diagrams	6	1, 10	a, l, m	1,2
Study of normal stresses: axial and bending	1, 4, 6	2, 10	a, l, m	1,2
Study of shear stresses: shear and torsion	5, 7	3, 10	a, l, m	1,2
Study of combined stresses	8	4, 10	a, l, m	1,2
Design of beams	11	5, 10	a, c, l, m	1, 2, 3
Stress transformation	9	6, 10	a	2
Deflection of beams	12	7, 10	a, c, l, m	1, 2, 3
Buckling and design of columns	13	8, 10	a, c, l, m	1, 2, 3
Energy methods	14	9, 10	a	2

Students with Disabilities:

Any students with disabilities or other special needs and who need special accommodations in this course, are invited to share these concerns or requests with the instructor as soon as possible.

Academic Dishonesty:

All work in this course must be completed in a manner consistent with Section 41301, Title 5, California Code of Regulations, as published in the University Catalog.

Homework Assignments and Exams

- a. All work should be done on engineering paper in pencil unless it is a computer printout
- b. Work done in an unprofessional manner will not be graded.
- c. All exams are open book and notes.
- d. Identical solution on exams, indicating copying, will result in an F in the course for both students involved. Additional disciplinary action may be taken by the college as well.

Grading Policies:

The plus/minus grading system will be used and work will be evaluated as follows:

Homework Assignments	10%
Exam # 1	30%
Exam # 2	30%
Exam # 3	30%

Grading Scale:

90+	A
86-89	A-
82-85	B+
78-81	B
74-77	B-
70-73	C+
66-69	C
60-65	C-
55-59	D
54-	F