Statics and Mechanics of Materials II   Spring 2022
Syllabus

CATALOG DESCRIPTION

Second of a two course sequence covering statics and strength of materials. Topics include: flexure; second moment of areas, shear force and bending moment diagrams, composite beams, shearing stresses, beam deflections, energy methods, Castigliano's methods, moment area method, combined static loading and columns.

Prerequisite: ENGR 0135 or ET 0051. 3 credit hours.

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Instructor: Qi, Gang PhD

Textbook: Statics and Mechanics of Materials: An Integrated Approach (2nd Edition), W. F. Riley,

L. D. Sturges, and D. H. Morris, Wiley, ISBN – 978-0-471-43446-7

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Office: 4-219;

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Office hours: 9:00 – 10:00 am and 1:30 – 3:00 pm Thu and 9:00 – 10:00 am Fri.

Teaching Assistant: Zhang, Xuyi

(*Modifications to this syllabus may become necessary during the semester. Any changes to the syllabus shall be posted on the course website and announced in class*)

Prerequisites

MATH 0230 Analytic Geometry & Calculus 2
PHYS 0174 Basic Physics for Science & Engr. 1

Class Format
The teaching format of this course is lecture + inclass exercise. The lectures include introducing the concepts, the commands, text materials, and questions. There will be ~20 min for students to solve inclass exercises as a part of class activities.

Assignments
There are two parts of assignments: Inclass Exercises and Homework every week. Both must be submitted in clear electronic writeups.
Inclass exercise: These problems are introductory. Students are required to complete them use a good part of the class period time while instructor is present. The scores of these problems are based on the completeness not the correctness as the instructor will address most of them in the following class.
Homework: Students are required to complete these assignments individually and submit an electronic writeups at no later than the midnight before the next class. For instance, the due day is the midnight of the following Monday (24:00).

Attendance Policy

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Class attendance is required. Absence of 4 or more will result a failure of this class.

Plagiarism and Academic Misconduct

Plagiarism, copying, and any other form of academic misconduct or dishonesty will not be tolerated. Cite all references, such as books, technical reports, and web sites you have used. You may discuss the homework with other people currently taking this class, the instructors, and any teaching assistants.
Class attendance is required. A total of 4 and more absence will result a failure of this class.

Course Topics and Calendars:

Session	Chapter	Topic	Assignment
1	Review	Chpt 2-7 and Flexural load fundamental	HW Set 1
2	8.1-8.5	Flexural Strains/Stresses, 2nd Moment of Area, Bending normal stresses	HW Set 2
3	8.5 - 8-6	Shear forces, Bending Moments and their relationships	HW Set 3
4	8.7	Load, Shear force, and bending moment relationships	HW Set 4
5	8.8	Shear Stress in Beams	HW Set 5
6	Interm Exam 1		
7	9.1-9.3	Differential eqaution of deflection curve	HW Set 6
8	9.4	Deflection by integration	HW Set 7
9	9.5	Deflection by Singularity functions	HW Set 8
10	9.6	Deflection by superposition	HW Set 9
11	9.7, 9.8	Statically Indeterminate beams	HW Set 10
12	Interm Exam 2		
13	10.1-10.3	Stress at a general point, plane stress	HW Set 11
14	10.4, 10.5	Stress transformation equation, Principal stresses and maximum shearing stress	HW Set 12
15	10.6	Mohr's Circle	HW Set 13
16	10.7, 10.8, 10.11	Plane strain, Strain transformation equation, Generalized Hooke's Law	HW Set 14
17	11.1-11.3	Column	HW Set 15
18	Interm Exam 3		

Grading:

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- Homework Assignments   15%
- Inclass Exercises   5%
- One open end design project   5%
- Three Interm exams   75%

Numerical and letter scales conversion

Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Percentage (%)	100~90	89~85	84~80	79~76	75~73	72~70	69~66	65~63	62~61	60	<60

Your HW assignments will be graded by the TA of your section. If you believe an error has been made in the grading of an assignment, you are to bring it to the attention of the TA within ONE WEEK after grading.