

Applied Elasticity and Advanced Mechanics of Solids

EGM 5533 ;Sect #12082 (CAMP); Sect # 12083 (1FE2); Sect # 12084 (2FED); Sect # 25555 (WEBR)

Class Periods: MWF, 5th Period, 11:45– 12:35 pm

Location: NEB 100

Academic Term: Fall 2025

Instructor

Professor Ghatu Subhash

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(352) 392-7005

Office Hours: MWF 12:45-1:35 pm, NEB 257

Teaching Assistant

Mr. Pavankumar Tilagul, ptilagul@ufl.edu; Virtual Off. Hrs. Email in advance to set up zoom call if needed.

Course Description

Analysis of classical bars, beams, thin-walled structures, and simple continua in the elastic range, Virtual work approaches, and elastic energy principles.

Prerequisites (Must)

EGM 3520 Mechanics of Materials or Strength of Materials

Course Objectives

The major goal of this course is to teach exact (Theory of Elasticity) and approximate (Adv. Mech. Materials) methods in the analysis of solids and structures. The methods are applicable to design and analysis of mechanical, aerospace, and civil engineering structures.

Materials and Supply Fees

NONE

Required Textbook

Advanced Mechanics of Materials and Applied Elasticity, A.C. Ugural and S.K. Fenster, 6th Edition, Pearson

Course Schedule

Analysis of Stress (weeks 1-3)
Strain and Material Properties (weeks 3-4)
Problems in Elasticity (weeks 4-6)
Bending of Beams (weeks 7-8)
Torsion of Prismatic Bars (week 9)
Axisymmetrically Loaded Members (week 10-11)
Beams on Elastic Foundation (week 12)
Energy Methods Stability of Columns (week 13)

Computer

Some numerical work may be necessary. MATLAB or Excel should be sufficient.

Homework

Posted on 1 (Sept 6); 2 (Sept 20); 3 (Oct 4); 4 (Oct 23); 5 (Nov 4); 6 (Nov 18)

HW is due the following week on the same day by 10 am.

Important Dates

Midterm I Friday Sept 26th

Midterm II Monday Oct 24st

Midterm III or Final take home: (Could be an in-class exam on Dec 1st or take home exam during the Thanksgiving break + last week of classes with due date on Dec 5th).

***Note:** Midterm exams are in-class (1 hr). They are close notes & close book. No make-up exams will be given. You are allowed to bring one-page formula sheet (Only formula sheet and no text or figures allowed. It will be checked during the exam)*

Evaluation of Grades

HWs (30%); Midterm I (20%), Midterm II (20%), Midterm III (30%)

Grading Policy

A	93-100%;	A-	89-92.99%;	B+	85-88.99%;	B	81-84.99%;
B-	76-80.99%;	C+	72-75.99%;	C	68-71.99%;	C-	64-67.99%;
D+	60-63.99%;	D	56-59.99%;	D-	52-55.99%;	E	<52%

Make-up Exam Policy: No make-up exams unless there is a **documentable extreme medical emergency**. No credit will be given for a missed exam/homework. ***All exams will be given during the scheduled class times.***

Course website

The course material including homework assignments, grades, relevant material will be uploaded on Canvas website. Students are expected to check the website on a regular basis for up-to-date course information. This may include changes to the syllabus, homework assignments, due dates, and exam schedules. Follow the link below for the course website: <https://lss.at.ufl.edu/>

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: <https://go.ufl.edu/syllabuspolices>. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Coordinator
- HWCoe Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu