

ENGR 0145 – STATICS & MECHANICS OF MATERIALS II**Fall 2021**

(Modifications to this syllabus may be required during the semester. Any changes to the syllabus will be posted on the course website and announced in class)

Catalog Description

The course develops the theory behind the fundamental topics of mechanics of materials and demonstrates how this theory is put into practice to analyze structural elements. Techniques are presented to analyze deformation/strains as well as forces/stresses for beams. Buckling and combined loading configurations will be analyzed through stress, strain and deformation. Methods to analyze simple flexural and buckling members in accordance prescribed limits of stress and deflection will be demonstrated. (3 credit hours)

Prerequisites: ENGR 0135 Statics and Mechanics of Materials I

Schedule: Lecture, Room 3-103 Tuesday 8:15am – 11:00am

Instructor: S.C. Fok, Office: Room 222 (Zone 4)

Office Hours: Monday, Tuesday & Wednesday 1:00 – 4:00pm

For consultation outside office hours, please send an email to make an appointment

Email: saicheong.fok@scupi.cn

Teaching Assistants: Lisa Sha (contact: 3525625946@qq.com, phone: 13076081926)

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

Additional references and supplementary materials will be posted on Blackboard.

Learning Outcomes

After the successful completion of this course students should be able to:

- Analyze the flexural and shear stresses in beams as well as their deflections under different loadings and support conditions,
- Analyze the buckling of columns under different boundary conditions,
- Analyze the plane stress and plane strain states of structures subjected to combined loadings.

Grading Policy

Your grade will be based on your overall performance in all assessment items as follows (note: the assessment items may be subjected to change):

ACTIVITIES	PERCENTAGES
Quizzes	10%
Assignments	10%
Midterms	40%
Final	40%

Note: Students who need to complete the course early will take a special exam to replace the final exam. Submission requirements (including due dates) for all assessments will be announced to students in class or on Blackboard.

Tentative Course Schedule (changes will be announced in class):

Week	Text	Topic
1		Review of stress and strain, second moment of areas
2	Chap 8	Shear force and bending moment diagrams
3	Chap 8	Flexure stress & strain and elastic flexure formula
4		Public holidays
5	Chap 8	Shear stress in beams
6		Public holidays
7	Chap 9	Beam deflection by integration
8		Midterm 1
9	Chap 9	Singularity functions & superposition
10	Chap 9 + handout	Statically indeterminate beam and Castigliano theorem
11	Chap 10	Plane stress & Moore circle for plane stress
12		Midterm 2
13	Chap 10	Plane strain & Moore circle for plane strain,
14	Chap 10	Generalized Hooke's law, and Thin-walled vessel
15	Chap 10	Combined loadings, and Failure theory
16	Chap 11	Column buckling

The course will cover the materials through guided learning, discussion, assignments, and quizzes. Class exercises involve active student participation. Assignments will focus on fundamentals so that students can better understand basic concepts.

Class Policies:

- Regular class attendance is expected.
- Assessments will evaluate the student's understanding of material covered in lectures and reading assignments. The submission requirements are clearly stated in the assessment items. No marks will be awarded for failure to meet the submission requirements.
- Late submissions will not be accepted unless you have made prior arrangements with Instructors. However, if a student has a valid reason and cannot submit an assessment item by the deadline, the student must contact the instructor immediately. Failure to do so will result in a zero for that assessment item. If the reason stated is consistent with University Policy, arrangements will be made for the student to resubmit the assessment item.
- Once the graded assessment item has been returned to the student (or solution to the assessment item has been released, no makeup of the assessment will be allowed even if there is a valid reason.
- Challenge to the grading must be made within 7 days after the returned of the assessment item. No challenges to the grading will be entertained after the 7-day period.
- Academic misconduct will not be tolerated. All misconduct will be reported and dealt with by SCUPI.

Honesty Policy: All students admitted to the SCUPI have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a SCUPI student.

ACADEMIC INTEGRITY

Students in this course will be expected to comply with the Sichuan University's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.