Syllabus for ENGR151-01: Strength of Materials

Fall 2021
Instructor: Sachin Goyal

Designation:	ENGR 151
Catalog Description:	Stresses and strain in solids, uniaxial loading, linear elasticity, material behavior, stresses in beams, pressure vessels, Torsion of circular shafts, bending of beams of symmetrical section, column buckling and elastic instability.
Text Books and Other Required Materials:	Via Inclusive Access - Smart textbook by Cengage Learning (MindTap® Engineering, Goodno/Gere's Mechanics of Materials, SI Edition, 9th Edition)
Course Objectives/ Student Learning Outcomes:	1. Understand the basic concepts of stress, strain, deformation, and material behavior under different types of loading: axial, torsion, bending. 2. Perform stress analysis and design of beams subjected to bending and shearing loads using several methods. 3. Perform stress analysis of thin-walled members. 4. Understand and analyze elastic stability of columns.
Program Learning Outcomes:	
Prerequisites by Topic:	ENGR 57 Statics and Dynamics or Equivalent ENGR 45 Introduction to Materials or Equivalent
Course Policies:	1. This course is a blend of online learning with some face-to-face instructions/ discussions. 2. Students are responsible for checking emails regularly for important information and announcements posted on UCM CatCourses related to the course. 3. The course has been set up so that students follow each page on UCM CatCourses in a sequence. Please follow the pages and the content in each week's module one at a time in the posted sequence diligently following the deadlines. 4. Homework/ quizzes/ assignments have deadlines on the UCM CatCourses. For most of them, no late submissions can be accommodated because they are automatically graded. Furthermore, we will like to make the solutions available right after the deadline so that students can compare and review. However, for some of the manually graded items, the instructor may give a provision of late submission with some penalty. 5. There is one mid-term and a final exam. They may or may not be open book. Detailed policies will be conveyed for each midterm or exam as time nears.

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	6. For manually graded items, please report grading mistakes or concerns within one week of grading. Beyond one week, no such requests will be handled. Students are also responsible for checking their scores online.
Academic Dishonesty Statement:	a. Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work. b. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e mail, an e mail attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action. c. During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.
Disability Statement:	Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations.
Topics:	1. Concepts of Stress and Strain 2. Stress-Strain Behavior, Axial Loading 3. Torsion 4. Bending 5. Analysis and design of beams for bending 6. Shearing in thin-walled members 7. Transformation of stresses and strains 8. Deflection of beams 9. Column buckling and elastic instability
Class/laboratory Schedule:	The course schedule is mostly driven by deadlines of each online material. For overall timeline, refer to Course Calendar posted in CatCourses. For face-to-face instructions, discussions, labs, office hours, refer to CatCourses.
Midterm/Final Exam Schedule:	Refer to UC Merced CatCourses

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Course Calendar:	Refer to UC Merced CatCourses
Professional Component:	Engineering fundamentals 75%, Engineering applications 25%
Assessment/Grading Policy:	Online and Reading Quizzes: 20% Lab Assignments: 20% Midterm: 30% Final Exam: 30% Tentative Grading: A 85-100%, B 70-85%, C 50-70%, D 40-50%, F 0-40%
Coordinator:	Course Coordinator and Instructor: Sachin Goyal; Teaching Assistant(s): Refer to CatCourses
Contact Information:	If there is any query or concern that cannot be communicated via CatCourses (such as via "Discussions" or Comment on the online quiz/ assignment, send us an email at: Goyal_ENGR151@ucmerced.edu. This email includes the instructor and TA(s). Please start the email subject with "ENGR 151:" followed by more specific description, for example "quiz" or "lab".
Office Hours:	Refer to UC Merced CatCourses