

Course Syllabus – CNST 3355 Strength of Construction Materials

Course Description:

Fundamental concepts and principles of mechanics, vectors, and force systems. Centroid and center of gravity. Moment of inertia. Concepts of free-body diagram, principles of equilibrium of particles and rigid bodies in two dimensions. External forces and concept of stress. Stresses and strains. Axial loading and axial deformation. Hooke’s law. Pure bending. Transverse loading and shear stresses in beams. Transformation of stresses and strains. Principal stresses and strains

Course Prerequisites:

C or Better in PHYS 1301 and MATH 1431

Textbook:

Leonard Spiegel and George Limbrunner. Applied Statics and Strength of Materials, Prentice Hall

Course Learning Outcomes:

Upon the completion of this course, students should be able to demonstrate the ability to:

1. Introduce students to statics of particles and rigid bodies, equilibrium, forces;
2. Introduce students to force components, moments, shear and moment diagrams, moments of inertia;
3. Introduce students to forces and stresses on simple structural elements;
4. Introduce students to bending, shear and normal force diagrams for statically determinant structures;
5. Introduce students to allowable stress, shear stress, normal strain, and stress- strain diagram; and material properties.
6. Analyze professional decisions based on ethical principles

In addition to the learning objectives above, this course emphasizes Ethics, Safety, and Oral/Written Communication.

Student Learning Outcomes:

6. Analyze professional decisions based on ethical principles
19. Understand the basic principles of structural behavior

Course and Student Learning Outcome Mapping:

Student Learning Outcome	Course Learning Outcomes
6	6
19	1,2,3,4,5

Student Learning Assessment and Assessment Target:

Assessment	SLO#6	SLO#19	Assessment Target
Assess (A)	X	X	At least 70% of students receive a grade of 70 or better

Class Grading:

Assignments:	15%
Class Quizzes:	20%
Midterm Exam:	30%
Final Exam:	35%

Grading Scale:

Letter Grade	Score
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	< 60%

Note: During the semester, students are responsible for verification of correct score for their assignments, quizzes, and midterm exams. No corrections/modifications will take place after the last class.

Class Schedule:*

Week #	Topics	Chapters
1	Introduction	Chapter #1
2-5	Principles of Statics	Chapter #2
6	Exam#1	
7-8	Shear and Moment Diagrams	Chapter #3
9-10	Cross-sectional Properties of Structural Members	Chapter #4
11-12	Stress and Strain	Chapter #5
13	Bending and Shear in Beams	Chapter #6
14	Exam#2	

*May subject to change

Academic Honesty:

The instructor reserves the right to adjust letter grades, upward only, based on individual attendance and class participation if numerical grade warrants such consideration. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced.

Exam Policy:

Exams will include material covered in class discussions and homework assignments. Exam make-up will be given only in the event of a verified emergency or doctor-verified sickness. The student is responsible for all reading assignments and class handouts whether or not covered in class or listed on the syllabus. The last day of class is the deadline for students to verify their grades and the accuracy of their score. After this deadline, there will be no consideration for any changes.

Students with Disabilities:

University of Houston provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic

accommodations should contact the Center for Students with Disabilities (713/743-5400) for more assistance.

Classroom Behavior:

High level of professionalism in the classroom is expected. The instructor has the right to set the rules in his/her classroom. A student does not have the right to make changes to the instructor's way of managing the classroom. Disruptive behaviors, such as excessive talking, arriving late to class, and using unauthorized electronic devices during class is not permitted. Repetitive and seriously disruptive behavior may result in removal from class in accordance with policies and procedures set by the Dean of Students Office.

University Counseling and Psychological Services:

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (UH main campus www.uh.edu/caps, or UH Sugar Land campus <http://www.uh.edu/dsaes/uhsugarland/>) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus.

UH main campus: http://www.uh.edu/caps/outreach/lets_talk.html

UH Sugar Land campus: <http://www.uh.edu/dsaes/uhsugarland/>

Course/Instructor Evaluation:

A Start -Stop-Continue survey and a course/instructor evaluation will be conducted at the middle and the end of this semester. Any suggestions you have on improving the course, however, are welcome throughout the semester.

For detailed information about Disabilities, Religious Holy Days, the Academic Calendar, and Academic Honesty, and other information, please visit the following website:

http://www.uh.edu/provost/stu/stu_syllabsuppl.html

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<http://www.uh.edu/provost/policies/student/resources/>.

Resources for Online Learning:

The University of Houston is committed to student success, and provides information to optimize the online learning experience through our [Power-On](#) website. Please visit this website for a comprehensive set of resources, tools, and tips including: obtaining access to the internet, AccessUH, and Blackboard; requesting a laptop through the Laptop Loaner Program; using your smartphone as a webcam; and downloading Microsoft Office 365 at no cost. For questions or assistance contact UHOnline@uh.edu.

UH Email:

Email communications related to this course will be sent to your [Exchange email account](#) which each University of Houston student receives. The Exchange mail server can be accessed via Outlook, which provides a single location for organizing and managing day-to-day information, from email and calendars to contacts and task lists. Exchange email accounts can be accessed by logging into Office 365 with your CougarNet credentials or through Access UH. They can also be configured on [IOS](#) and [Android](#) mobile devices. Additional assistance can be found at the [Get Help](#) page.

Webcams:

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on (*state when webcams are required to be on and the academic basis for requiring them to be on*). (Example: *Webcams must be turned on during exams to ensure the academic integrity of exam administration.*)

Honor Code Statement:

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: *"I understand and agree to abide by the provisions in the (select: [University of Houston Undergraduate Academic Honesty Policy](#), [University of Houston Graduate Academic Honesty Policy](#)). I understand that academic honesty is taken very seriously and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston."*

Course Delivery Formats and Final Exams:

HyFlex Courses: This course is a HyFlex course. Some students may have a designated face-to-face spot reserved, but alternative ways to participate will also be provided. These alternatives may include (but are not limited to) attending class sessions through synchronous streaming, viewing recordings of class meetings asynchronously, participating in discussion boards, and/or completing self-directed activities. This course will have a final exam per the [University schedule](#). As the University will be transitioning all classes and final exams given after the Thanksgiving Break to online delivery, the exam for this course will be delivered in the synchronous online format, and the specified date and time will be announced during the course. Prior to the exam, descriptive information, such as the number and types of exam questions, resources and collaborations that are allowed and disallowed in the process of completing the exam, and procedures to follow if connectivity or other resource obstacles are encountered during the exam period, may be provided.

Synchronous Online Courses: This course is being offered in the Synchronous Online format. Synchronous online class meetings will take place according to the class schedule. There is no face-to-face component to this course. In between synchronous class meetings, there may also be asynchronous activities to complete (e.g., discussion forums and assignments). This course will have a final exam per the [University schedule](#). The exam will be delivered in the synchronous online format, and the specified date and time will be announced during the course. Prior to the exam, descriptive information, such as the number and types of exam questions, resources and collaborations that are allowed and disallowed in the process of completing the exam, and procedures to follow if connectivity or other resource obstacles are encountered during the exam period, may be provided.

Asynchronous Online Courses (or asynchronous exam in another course format): This course is taught Asynchronously, which means there is no designated day or time assigned to the course (although

optional synchronous sessions are possible, such as virtual office hours or discussion groups). Asynchronous instruction generally involves accessing content, such as recorded video lectures, readings, discussion prompts, assignments, and assessments during a flexible time frame, with due dates as specified. This course will have a final exam at the course conclusion. The exam will be asynchronous, and the date and time that it will be released and due will be announced during the course. Prior to the exam, descriptive information, such as the number and types of exam questions, resources and collaborations that are allowed and disallowed in the process of completing the exam, and procedures to follow if connectivity or other resource obstacles are encountered during the exam period, may be provided.

Alternative Assessment in Any Course Format: An alternative assessment will be used in the place of the traditional final exam at the course conclusion. Instructions will be provided, including the date and time that the assessment materials will be released to the class and will be due, resources and collaborations that are allowed and disallowed in the process of completing the assessment, procedures to follow if connectivity or other resource obstacles are encountered during the assessment period, acceptable submission formats, and submission location.

Helpful Information:

COVID-19 Updates: <https://uh.edu/covid-19/>

Coogs Care: <https://www.uh.edu/dsaes/coogscare/>

Laptop Checkout Requests: <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

Health FAQs: <https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/>

Student Health Center: <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>