EGDT 2610 Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: EGDT
Course and Section #: 2610-001
Course Title: Applied Structures II - Strength of Materials
Credits: 3

Course Description

Examines architectural long-span and high-rise structures with an emphasis on steel and concrete construction. Covers stresses, strains, properties of materials, Poisson's ratio, thermal effects, shear force, bending moments, lateral loads, deflection, connections, beam design and column design.

Course Attributes

This course has the following attributes:
☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Robert Price

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

Appraise design considerations for long-span and high-rise building types.
Select appropriate structural systems for differing conditions and building types.
Determine steel structural systems including various connection options.
Calculate concrete structural systems including connections to other material.
Characterize structural issues related to curtain walls, complex forces, and new technologies.
Calculate stresses, strains, and deformation.
Identify the mechanical properties of materials, Poisson's ratio, thermal effects, shear forces, and bending moments.

Course Materials and Texts

Textbook: Applied Statics and Strength of Material, 7th Edition

Course Requirements

Course Assignments, Assessments, and Grading Policy
Getting Started Assignments and Announcement Quizzes

One of your first assignments is to complete the syllabus quiz. It is important that you familiarize yourself with the syllabus (this document) and all of the information in the Course Orientation module. This quiz is multiple/choice, true/false and must be taken as many times as necessary to receive a perfect score. This will ensure that course expectations are clear. Other getting started assignments include getting the textbook, updating your profile and notifications, and introducing yourself to your classmates. Additionally at the end of the course you will have the opportunity to complete a Student Rating of Instructor (SRI) assignment. Course announcements are made on a weekly basis. A critical part of staying informed and fully participating in this course is to read each announcement. At times there will be critical information passed on that will not occur in any other way. An Announcement Quiz will be assigned in each module.

Discussions

Discussions will be forums to ask for and receive help from other students on related course topics. These Students-Helping-Students discussions are optional and ungraded. Be sure to ask your questions early on so there will be time for others to respond.

Homework Assignments

Homework assignments come from the course textbook (see the Course Schedule). They are not a high percentage of your grade, but neglecting them will make it harder to perform well on a test.

Exams

There are four exams given at various stages in the course. Exams are in-person on campus tests to be taken in class. The test is a pencil and paper exam. You may not use any electronic device other than a simple scientific calculator, appendix pages from the book, and the other reference pages provided. An equation sheet is provided for each practice test and you may use this equation sheet provided it contains nothing more than what a symbol means and formulas you have previously used and/or rearranged. You are not allowed to use lecture example problems, homework, practice tests, or any other resources. There are no retakes and all Exams will count toward your grade.

Grading Scale:
The following grading standards will be used in this class:

Grade	Percent
A	94-100
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76

C- 70-72
D+ 67-69
D 63-66
D- 60-62
E 0-59

Grading Categories:
Getting Started Assignments and Announcement Quizzes 5%
Discussions (Optional) Students Helping Students 0%
Homework 15%
Exams 80%

Late Work Statement:

Late work will not be accepted. This is a math class and falling behind is extremely detrimental to your success. The best way to be successful in this course is to stay on track, submit all the homework assignments by their due date, review your work, and do your best on the exams. Sticking to a schedule and meeting deadlines is critical in the design and construction industry.

In the event you have an unforeseen circumstance arise, contact your instructor as soon as possible. If you are unable to contact the instructor ahead of the due date, you will be expected to provide appropriate documentation such as a doctors note to be allowed to turn in anything late.

Required or Recommended Reading Assignments
Selected Chapters from course textbook. See the course schedule for topics.

General Description of the Subject Matter of Each Lecture or Discussion
Course Schedule
This is an outline of the course assignments by module. Refer to the assignments for specific due dates. If this course is delivered on a block schedule, expect to cover the material in half the time.

Orientation:
Introduce Yourself
Update Profile/Notifications
Get Course Textbook
Syllabus Quiz

Module 1:
Tensile and Compressive Stresses
Shear Stresses / Tensile and Compressive Strain and Deformation

Module 2:
Hooke's Law / Stress-Strain Diagrams
Allowable and Calculated Stresses / Factors of Safety

Module 3:
Piosson's Ratio / Thermal Effects
Members Composed of Two or more Materials (Composite Members)

Stress Concentration

Module 4:
Review for Test 1
Test 1

Module 5:
Members in Torsion / Torsional Shear Stress
Torsional Shear Stress Continued (Hollow Shaft Design)

Module 6:
Angle of Twist
Transmission of Power by a Shaff

Module 7:
Review for Test 2
Test 2

Module 8:
Beam Reactions / Shear Force and Bending Moment
Shear Diagrams

Module 9:
Sections of Maximum Moment
Moving Loads

Module 10:
Timber Beam Design I
Timber Beam Design II

Module 11:
Steel Beam Design

Module 12:
Review for Test 3
Test 3

Module 13:
Columns
Allowable Axial Compressive Loads

Module 14:
Analysis and Design of Axially Loaded Steel Columns
Analysis and Design of Axially Loaded Timber Columns

Module 15:
Strength and Behavior of Welded Connections
Review for Test 4

Module 16:
Test 4
SRI

Required Course Syllabus Statements

Generative AI
The use of generative AI tools is not permitted in this course.

Using Remote Testing Software
☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of

the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.