Western Carolina University
Department of Engineering and Technology

ET 333: Strength of Materials Laboratory
Fall 2017 - Sections 30 &31

Class time: Monday, 11:15 am – 12:55 pm (section 30)
Friday, 11:15 am – 12:55 pm (section 31)

Location: Belk 254

Instructor: Dr. Oai Ha
Office: 231 Belk Building;
Phone: (828) 227-2438
Web: http://paws.wcu.edu/otha/
Office Hours: W, F 9:00 – 10:30 am; 1:00 – 2:30 pm;
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1. Course Description
A study of the relations between externally applied loads and elastic stresses and strains for various types of materials.

2. Course Objective
This laboratory is designed to provide physical experience with the concepts of force, deflection, stress, strain, elastic modulus, material strength, torsion, torsional stress, polar moment of inertia, shear stress, shear strength, area moment of inertia, and beam deflection. Experience will be gained through a series of laboratories, in which the fundamental engineering principles presented in the accompanying course (ET 332) will be demonstrated through "hands-on" activities. Also, further information will be presented on how to analyze the data using established engineering methods and discussion of the laboratory results. This course will provide skills needed to solve engineering design problems that the students will likely encounter during the senior capstone course.

3. Co-Requisite
- ET 332: Strength of Materials

4. Evaluation

Assignments
- Laboratory reports will be used to demonstrate knowledge gained in the laboratory exercises.

ET 333 – Evaluation

Laboratory Report #1 – Axial Loading	20%
Laboratory Report #2 – Torsional Loading	20%
Laboratory Report #3 – Photoelastic Analysis of Beams	20%
Laboratory Report #4 – Critical Thinking	20%
Laboratory Report #5 – Rocket Strut	20%
	100%

Grading Scale: The grading scale below will be used to determine final grades:

98-100	A+	72 – 77	C
92 – 97	A	70 – 71	C-
90 – 91	A-	68 – 69	D+
88 – 89	B+	62 – 67	D
82 – 87	B	60 – 61	D-
80 – 81	B-	0 – 59	F
78 – 79	C+		

5. Faculty Expectations of Students and Course Policies

Academic Honesty Policy:

Students, faculty, staff, and administrators of Western Carolina University (WCU) strive to achieve the highest standards of scholarship and integrity. Any violation of the Academic Integrity Policy is a serious offense because it threatens the quality of scholarship and undermines the integrity of the community. While academic in scope, any violation of this policy is by nature, a violation of the Code of Student Conduct and will follow the same conduct process (see ArticleVII.B.1.a.). If the charge occurs close to the end of an academic semester or term or in the event of the reasonable need of either party for additional time to gather information timelines may be extended at the discretion of the Department of Student Community Ethics (DSCE).

Violations of the Academic Integrity Policy include:

- Cheating - Using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- Fabrication - Creating and/or falsifying information or citation in any academic exercise.
- Plagiarism - Representing the words or ideas of someone else as one's own in any academic exercise.
- Facilitation - Helping or attempting to help someone to commit a violation of the Academic Integrity Policy in any academic exercise (e.g. allowing another to copy information during an examination)

Your own course work from another class may be used, but this must also be cited and not presented as original work developed during the course. Instructors have the right to determine the appropriate sanction or sanctions for academic dishonesty within their courses up to and including a final grade of "F" in the course. Within five calendar days of the event the instructor will inform his department head, and the Associate Dean of the Graduate School when the student is a graduate student, in writing of the academic dishonesty charge and sanction. See the Student Handbook for information about the process.

Attendance Policy:

This laboratory course provided an opportunity for "hands–on" learning. Therefore, to obtain the learning objective of this course, your attendance and active participation is crucial, and you are expected to attend class each time the class meets. However, it is understood that occasions do arise that might prevent the student from attending class. You will be allowed to be absent from three laboratories during the semester. Each additional absence will result in a reduction of your final grade by 10%.

Students are expected to complete all assignments when scheduled. Students who are sick or otherwise unable to attend class on the day an assignment is due are encouraged to have their completed assignment delivered to the class (physically or electronically). When you are absent, it is your responsibility to obtain the material missed.

Accommodations for Students with Disabilities:

Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities and/or medical conditions. Students who require reasonable accommodations must identify themselves as having a disability and/or medical condition and provide current diagnostic documentation to the Office of Disability Services. All information is confidential. Please contact the Office of Disability Services at (828) 227-3886 or come by Suite 135 Killian Annex for an appointment.

Student Support Services:

The SSS provide support to students who are either first-generation, low-income or those who have disclosed a disability with academic advising, mentoring, one-on-one tutorial support, and workshops

focused on career, financial aid and graduate school preparation. You may contact SSS at (828) 227-7127 or email sssprogram@wcu.edu for more information. SSS is located in the Killian Annex, room 138.

The Writing and Learning Commons (WaLC):
Located in Belk 207, the WaLC provides free small-group course tutoring, one-on-one writing tutoring and academic skills consultations, and online writing and learning resources for all students. All tutoring sessions take place in the WaLC or in designated classrooms on campus. To schedule tutoring appointments, log in to TutorTrac from the WaLC homepage (http://walc.wcu.edu) or call (828) 227-2274. Distance students and students taking classes at Biltmore Park are encouraged to use Smarthinking and the WaLC's online resources. Students may also take advantage of writing tutoring offered at the Biltmore Park campus on certain days of the week; call (828) 227-2274 or log in to TutorTrac and select "Biltmore Park Writing Tutoring" for availabilities.

The Mathematics Tutoring Center:
The MTC provides tutoring in all lower-division math and many CS courses, help with mathematical concepts in other disciplines, and workshops on study skills specific to mathematics courses. Tutoring is available on a drop-in basis, 9-5 and 6-9 pm Monday-Thursday, and 9-5 on Friday or by appointment. Call (828) 227-3830 or visit 455 Stillwell or http://mathlab.wcu.edu,.

Academic Calendar:
The academic calendar includes dates for all breaks, university closures, final exams, etc. It can be found at: http://www.wcu.edu/academics/campus-academic-resources/registrars-office/academic-calendar.asp.

General Policies:
- No tobacco use will be allowed in the class room, laboratory or during field trips.
- Food and drinks are not permitted within the classroom or laboratory at any time.
- Students are responsible for the cleanup of their work area/module area after each use.
- Cell phones should be in silent mode or powered off during lecture and laboratory.
- Students who interfere, disrupt, or take away from the higher learning environment (talking, noise-making, disturbing others, etc.) will be reprimanded and/or ask to leave class for that day, and/or expelled from class with a final grade of "F."
- Special need students. Students should notify the professor and show documentation of the need for Student Support Services during the first week of class.
- Laboratory safety is critical. Do not operate machinery or equipment unless you are qualified, trained, and you feel competent. Do not engage in horseplay.
- Certain team projects (identified by the professor), will be joint and only one paper/presentation is required. Team members should report any disparity in project work load to the professor. Team members may also be asked to grade themselves and their team mates on participation.
- All written work will be closely monitored for plagiarism (see Academic Honesty Policy). Outside source must be cited.

Course Evaluation:
Course Evaluation Dates: November 12 – December 8, 2017.
Students are strongly encouraged to participate in online course evaluations (CoursEval).

ET 333: Strength of Materials Laboratory

Course Schedule* - Sections 30/31

Dates	Topic
Aug 21/25	Laboratory introduction – Syllabus review
Aug 28/Sep 1	Axial Loading Laboratory – Part #1 : Experiment
Sept 4	**Labor Day: No Class**
Sept 8/11	Axial Loading Laboratory – Part #2 : Data Analysis
Sept 15/18	Axial Loading Laboratory – Part #3 : Discussion (Check and Advise Preliminary reports)
Sept 22/25	Axial Loading Laboratory Report: Due Discuss Axial Loading Laboratory Report
Sep 29/Oct 2	Torsional Loading Laboratory – Part #1 : Experiment
Oct 6/9	Torsional Loading Laboratory – Part #2 : Data Analysis
Oct 13/23	Torsional Loading Laboratory Report : Due Photoelastic Analysis of Beams Laboratory
Oct 16/20	**Fall Break: No Class**
Oct 27/30	Rocket Strut Design Laboratory – Part #1 : Problem discussion & team formation Introduce Critical Thinking Lab
Nov 3/6	Rocket Strut Design Laboratory – Part #2 : Individual team work – no class Photoelastic Analysis of Beams Laboratory: Due (my mail box)
Nov 10/13	Critical Thinking Laboratory – Groups 1 & 2
Nov 17/20	Critical Thinking Laboratory – Groups 3 & 4
Nov 24	**Thanksgiving Break: No Class**
Nov 27/30	Rocket Strut Design Laboratory – Part #3 : Performance Testing Critical Thinking Laboratory: Due
Dec 4/7	Rocket Strut Design Laboratory Repor*: Due
Dec 11	Exam

* The contents and sequence of topics are subject to change at the discretion of the instructor.