Spring 2025, EN-3112L Strength of Materials Lab
School of Engineering
Massachusetts Maritime Academy

Instructor: Dr. Wei Yu

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Office Hours: MF 1100am - 1150am, W 1400pm - 1450pm or by appointment.

Office Location: Harrington Building, 209A

Class Schedule:

- Section 41: Th, 800am - 950am
- Section 43: Th, 1000am - 1150am

Class Location: Bresnahan Building, 108

Requisite:

- EN-3112 Strength of Materials - Must be taken either prior to or at the same time as this course.

Course Description: This laboratory reinforces the basic concepts of normal stress, shear stress, torsion, beam bending and deflection, and beam design as taught in the Strength of Materials course. Formal engineering memorandums are required with emphasis on writing and spreadsheet skills.

Course Outcomes:

- Conduct basic engineering experiments
- Apply strength of material concepts to physical systems
- Analyze data and formulate engineering conclusions
- Write professional technical documents
- Organize and display data in logical and professional manner
- Recognize the differences between theoretical and actual engineering systems
- Work as a team to solve technical problems

Safty Policy: You need eye protection in this lab course. If you forget your eye protection, you will be sent back to retrieve your eye protection.

Grading Policy: The course grade is calculated based on the following weights.

Excel Graph/Table ($\times$ 10)	70%
Memorandums ($\times$ 2)	30%

After each lab, there is a lab assignment that is expected to be finished in the format of Excel graph/table or memorandum. While lab activities are conducted by you and your team, lab assignments should be done by each INDIVIDUAL. Submitting your team member's work as your own is considered as plagiarism.
Your submission of lab assignments should be via the course blackboard. Any late submission gets a 10% penalty for each late day. Any late submission after one week of the due date gets no credit without prior authorization from the instructor. No homework would be accepted after the last day of the semester.
Letter grades are typically assigned with respect to total percentages earned based upon the standard described in the catalog.
(93% - 100%, A; 90% - 92%, A-; 87% - 89%, B+; 83% - 86%, B; 80% - 82%, B-; 77% - 79%, C+; 73% - 76%, C; 70% - 72%, C-; 67% - 69%, D+; 63% - 66%, D; 60% - 62%, D-; 0% - 59%, F.)

Excel Graph/Table 70%: There are 10 Excel graph/table assignments and the grade of each assignment counts as 7% of the overall course grade. Each Excel graph/table assignment needs to be finished in Microsoft Excel (or similar) format and submitted to the course blackboard by the due date.

Memorandums 30%: There are 2 memorandums and the grade of each memorandum counts as 15% of the overall course grade. Each memorandum needs to be written in Microsoft Word (or similar) format and submitted to the course blackboard by the due date.

Attendance Policy: The FULL attendance of all labs is required to pass the course. FIVE minutes late or early leave of a class without prior authorization is considered as an unexcused absence. In order to obtain an excused absence or prior authorization from the instructor, you must,

1. notify the instructor in advance of the absence,
2. provide written documents to justify your absence.

Both of the criteria must be satisfied to obtain an excused absence or prior authorization. Having watch is NOT a valid absence excuse. For any excused absence, only ONE time makeup lab will be arranged. There is no second makeup lab if you miss the first one.
The uniforms should be worn in class. Boiler suits are not allowed. No food or drink is allowed in class. Please use restroom before or after class but not in the middle of class to avoid class interruption.

Contribution to The Proffesional Component: Strength of materials lab, a required course for Marine Engineering, Facilities Engineering and Energy Systems Engineering, requires that students use the fundamental knowledge from other courses in the program, such as: mathematics, physics, and mechanics. This course contributes 1 semester hour to the engineering topic requirement.

Academic Dishonesty: All work submitted in this course must be your own and produced exclusively for this course. The use of sources (ideas, quotations, paraphrases) must be properly acknowledged and documented. When the instructor has concerns about potential violation of the Honor Code, the instructor may pursue the alleged violation with the Commandant of Cadets. In serious cases, violations of the honor code may result in dismissal from the Academy. If you are in doubt regarding any aspect of these issues as they pertain to this course, please speak with the instructor.
Taking and using the writing, ideas or work of another person and passing it in as your own work is considered as plagiarism. If you are not sure if you are plagiarizing, you can always check with the instructor in advance. Some of the most common forms of plagiarism are:

- Turning in another student's work as your own with or without the student's knowledge
- Turning in work that another student, friend, family member, etc. has written for you

Students with Disabilities: The Academy offers, upon request, accommodations to students with documented learning disabilities. The ADA Coordinator, Asst. Dean Elaine Craghead, evaluates the documentation provided, determines appropriate services, and is available to discuss accommodations with students. The Disability Resources office is located in the Academic Resource Center, ABSIC 320. Students can drop in during normal business hours, M-F 0800-1600, or call x5120, or email ADAcompliance@maritime.edu.

Tentative List of Labs To Be Conducted:

Week	Date	Lab Topics	Assignment	Due Date
2	3/13	Introduction/Excel	Excel Graph/Table	3/14
3	3/20	Double Shear Test	Excel Graph/Table	3/21
4	3/27	Ultimate Tensile Strength	Excel Graph/Table	3/28
5	4/3	Izod/Charpy Impact Testing	Excel Graph/Table	4/4
6	4/10	Poisson's Ratio	Excel Graph/Table	4/11
7	4/17	Torsion Test	Memorandum	4/19
8	4/24	Stress Concentration	Excel Graph/Table	4/25
9	5/1	Principal Stresses	Excel Graph/Table	5/2
10	5/8	Beam Deflection	Excel Graph/Table	5/9
11	5/15	Equation of the Elastic Curve	Memorandum	5/17
12	5/22	Compressive Strength	Excel Graph/Table	5/23
13	5/29	Column Buckling	Excel Graph/Table	5/30
14	6/5	Makeup		