



# Course Syllabus

## MEC 260: Engineering Statics

### Fall 2024

<b>Instructor</b>	Amin Fakhari, Ph.D., Department of Mechanical Engineering
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<b>Office Hours</b>	MoWe 3:30 – 4:30 PM (and, any other time by appointment)
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\* All non-personal course-related questions should be posted on Brightspace Discussions Forum (see section Tools below). Email should be used only for strictly personal issues. I will respond to your emails as soon as possible, however, please allow up to 48 hours for a response. Please use your SBU email for all your communications.

<b>Teaching Assistant #1</b>	Huan Liu ( <a href="mailto:Huan.Liu.1@stonybrook.edu">Huan.Liu.1@stonybrook.edu</a> )
<b>Office Hours &amp; Office</b>	Recitation Sessions (01-03) on Mondays
<b>Teaching Assistant #2</b>	Wanru Miao ( <a href="mailto:Wanru.Miao@stonybrook.edu">Wanru.Miao@stonybrook.edu</a> )
<b>Office Hours &amp; Office</b>	Tu 1:00 – 3:00 PM, 158 Light Engineering
<b>Teaching Assistant #3</b>	Shaodi Wu ( <a href="mailto:Shaodi.Wu@stonybrook.edu">Shaodi.Wu@stonybrook.edu</a> )
<b>Office Hours &amp; Office</b>	Th 3:00 – 5:00 PM, 158 Light Engineering

## Course Details

<b>Title</b>	MEC 260: Engineering Statics
<b>Credit</b>	3
<b>Lecture</b>	MoWe 5:00 – 6:20 PM, Frey Hall 102
<b>Recitation-01</b>	Mo 9:30 – 10:25 AM, Heavy Engineering Lab 201
<b>Recitation-02</b>	Mo 11:00 – 11:55 AM, Frey Hall 205
<b>Recitation-03</b>	Mo 3:30 – 4:25 PM, Harriman Hall 104
<b>Prerequisites</b>	PHY 131 or 141 or 125, MAT 203 or AMS 261 (co-requisite)

## Course Description

A review of vector algebra. Concept of force. Equilibrium of particles. Free body diagrams. Moments about points and lines, couples and equivalent force systems. Equilibrium of rigid bodies. Analysis of simple structures such as trusses, frames, and beams. Centroids, centers of gravity, and moments of inertia. Dry friction with applications to wedges, screws, and belts. Method of virtual work, potential energy, and stability.

## Course Learning Objectives

1. Represent force and moment as vectors in a Cartesian coordinate system.
2. Algebraically analyze the effect of systems of forces on rigid bodies.
3. Draw free body diagrams of rigid bodies and systems.
4. Apply vector-based systematic procedures for determining forces in statically determinate systems.
5. Calculate centroids, second moments of area, and moments of inertia.
6. Provide the necessary background for MEC 262, MEC 363, and MEC 364.

## Tools

**Brightspace:** It is required that you use the [Brightspace](#) for this course. Brightspace is used for facilitation of communications between faculty and students, posting of the course materials, important announcements, and grades, and submission of assignments. You need to check your SBU email or Brightspace announcements regularly [[Android App](#), [iOS App](#)].

**Brightspace Discussions Forum:** By using the Discussions tool/forum in Brightspace, you can get help fast and efficiently from your classmates, the TA(s), and the instructor. All non-personal course-related questions that might be of interest to other students should be posted (either anonymously or identified) on the Brightspace Discussions forum and not emailed to the TA(s) or the instructor. Email should be used only for strictly personal problems or issues.

Note that this discussion forum is for additional learning and assistance. It is not the place for cyber-bullying, memes, grade complaints, concerns/comments/criticisms about the course, or in general, anything unrelated to the course material and student learning. Improper behavior will result in reporting of the individual's behavior to the Office of Student Conduct and Community Standards.

**McGraw Hill Connect:** The [Connect](#) is an online education platform that you should use to access the online version of the textbook and submit your homework assignments.

**Calculator:** Only NCEES Allowed Calculators will be permitted to be used on all quizzes, midterm, and final exams. Please see the Calculator Policy on [Stony Brook](#) and [NCEES](#) websites.

## Textbook

F. Beer and E. Johnston and D. Mazurek, *Vector Mechanics for Engineers: Statics*, McGraw-Hill Education, 2024 Release (ISBN-10: 1260710890, ISBN-13: 9781260710892) [[Publisher](#), [Amazon](#)].

For this course, you will be required to purchase McGraw-Hill Connect to access the online version of the textbook and submit your homework assignments. You are not required to have a printed versions of the textbook. If you purchase a printed textbook, you will still need to purchase McGraw-Hill Connect. There are different options to purchase the Connect and eBook:

- (a) **Through Brightspace** (Recommended): Sign in to your [Brightspace](#), go to course MEC 260, select "McGraw-Hill Connect" from the navigation bar, click "Go to My Connect Section", follow the on-screen instructions to register using your SBU email address, and purchase with either a credit card or Paypal account ([More Information](#)).
- (b) **Through McGraw Hill Website:** Go to the [textbook webpage](#) at McGraw Hill, click "Connect" below "Format Options", and purchase a Connect Access Code. Then, follow the instructions given in option (a) above, and use your SBU email address and the code to register.
- (c) **Temporary Access:** Early in the semester, you may be able to register for 2-week [Temporary Access](#). Remember to purchase full access to Connect before the temporary access period ends in order to avoid interrupted access to your course ([Upgrading from Courtesy Access](#)).

## Homework Assignments

- Homework assignments will be made almost every week.
- Homework should be completed before the due date in McGraw-Hill Connect, which is accessible through Brightspace under Assignments. By clicking on an assignment on Brightspace, you will be automatically sent to the same assignment in McGraw-Hill Connect.
- The grade you get in Connect will automatically show up in your Brightspace once the due date is passed.
- Your assignment will be automatically submitted on the due date if you forget to submit it before that.
- On each question, you have 3 opportunities to check whether your answer is correct. You have also 3 attempts to do the assignment (an “attempt” means a submitted assignment that will be graded). In the second and third attempts, you just need to revise the wrong answers you gave in the previous attempts, and you do not have to do the entire homework again. Your highest score among the attempts will be recorded in Brightspace (it may take a while to see the updated grade on Brightspace). Do not settle for a score of less than 100%.
- Solutions can be accessed through Connect by clicking “Submit” in “Study Mode” one hour after the homework is due (this submission in “Study Mode” does not affect your grade).
- Once a student has started a “Study Mode”, the due date of the assignment cannot be changed. Also, students who have started a “Study Mode” are not eligible for an assignment extension.
- Tolerances on numerical answers are set to  $\pm 2\%$  of the nominally correct answer.
- Late homework will not be accepted in any case.

## Examinations

<b>Midterm Exam #1</b>	Monday, Sep. 23, 2024 (in class)
<b>Midterm Exam #2</b>	Wednesday, Oct. 16, 2024 (in class)
<b>Midterm Exam #3</b>	Wednesday, Nov. 13, 2024 (in class)
<b>Final Exam (Comprehensive)</b>	Wednesday, Dec. 11, 2024, 5:30 – 8:00 PM (in class)

- All the exams are closed book/notes.
- Make-up exams are considered only for students who provide documentation of a compelling reason (e.g., medical emergency) before, or within two days following the missing exam. There will be no make-up exams for reasons that can be within your control (e.g., pre-arranged travel or other engagements). An unexcused exam absence will be scored as a zero.
- The exam dates are subject to change. Students will be notified in a timely manner of any changes.

## Grading Policy

<b>Homework (Weighted Equally)</b>	10%*
<b>Midterm Exam #1</b>	20%
<b>Midterm Exam #2</b>	20%
<b>Midterm Exam #3</b>	20%
<b>Final Exam (Comprehensive)</b>	30%

- Any disagreement with exam grading must be settled within one week after posting the grades.
- No individual extra credit work or extra points will be offered to improve grades.

\* Homework grade does not have a significant contribution to your final grade. Homework is mainly assigned to make the student familiar with the topics and also the questions they will possibly see in the exams.

## Grading Scale

<b>A</b>	[100, 90]%	<b>A<sup>-</sup></b>	(90, 85]%	<b>B<sup>-</sup></b>	(75, 70]%
<b>B<sup>+</sup></b>	(85, 80]%	<b>B</b>	(80, 75]%	<b>C<sup>-</sup></b>	(60, 55]%
<b>C<sup>+</sup></b>	(70, 65]%	<b>C</b>	(65, 60]%	<b>F</b>	(45, 0]%
<b>D<sup>+</sup></b>	(55, 50]%	<b>D</b>	(50, 45]%		

(a) A grade of **C** or higher is required in MEC 260 to take MEC 262 and MEC 363.

## Tentative Course Schedule

	Monday		Wednesday	
<b>Aug</b>	08/26	Syllabus, Chapter 1/2	08/28	Chapter 2
<b>Sep</b>	09/2	Labor Day	09/4	Chapter 2
	09/9	Chapter 3	09/11	Chapter 3
	09/16	Chapter 3	09/18	Review
	09/23	Exam #1 (Chapters 2, 3)	09/25	Chapter 4
	09/30	Chapter 4	10/2	Chapter 5
<b>Oct</b>	10/7	Chapter 5	10/9	Review
	10/14	Fall Break	10/16	Exam #2 (Chapters 4, 5)
	10/21	Chapter 6	10/23	Chapter 6
	10/28	Chapter 6	10/30	Chapter 7
<b>Nov</b>	11/4	Chapter 7	11/6	Chapter 7
	11/11	Review	11/13	Exam #3 (Chapters 6, 7)
	11/18	Chapter 8	11/20	Chapter 8
	11/25	Chapter 9	11/27	Thanksgiving Break
<b>Dec</b>	12/2	Chapter 9	12/4	Chapter 10
	12/9	Review	12/11	Final Exam (Comprehensive)

Chapter 1: Introduction,

Chapter 2: Statics of Particles,

Chapter 3: Rigid Bodies: Equivalent Systems of Forces,

Chapter 4: Equilibrium of Rigid Bodies,

Chapter 5: Distributed Forces: Centroids and Centers of Gravity,

Chapter 6: Analysis of Structures,

Chapter 7: Internal Forces and Moments,

Chapter 8: Friction,

Chapter 9: Distributed Forces: Moments of Inertia,

Chapter 10: Method of Virtual Work.

## Syllabus Disclaimer

The instructor views the course syllabus as an educational understanding between the instructor and students. Every effort will be made to avoid changing the course schedule, materials, assignments, and deadlines, but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or Brightspace announcements.

## University Policies and Statements

### Academic Integrity Statement

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at [http://www.stonybrook.edu/commcms/academic\\_integrity/index.html](http://www.stonybrook.edu/commcms/academic_integrity/index.html).

### Student Accessibility Support Center (SASC) Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at [sasc@stonybrook.edu](mailto:sasc@stonybrook.edu). They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center ([SASC](#)). For procedures and information go to [Evacuation Guide for People with Physical Disabilities](#) and search Fire Safety and Evacuation and Disabilities.

### Critical Incident Management Statement

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

### Copyright Statement

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