



# Course Syllabus

## MEC 260: Engineering Statics

Spring 2022

<b>Instructor</b>	Amin Fakhari, Ph.D., Department of Mechanical Engineering
<b>Office</b>	165 Light Engineering, Stony Brook University
<b>Office Hours</b>	TuWe 4:15 – 5:45 PM (and, any other time by appointment*)
<b>Phone</b>	(631) 632-8329
<b>Email</b>	<a href="mailto:amin.fakhari@stonybrook.edu">amin.fakhari@stonybrook.edu</a>

\* I will respond to your emails as soon as possible, however, please allow 24-48 hours for a response. Please use your SBU email for all your communications.

<b>Teaching Assistant</b>	Si Chen ( <a href="mailto:si.chen.2@stonybrook.edu">si.chen.2@stonybrook.edu</a> )
<b>Office</b>	158 Light Engineering
<b>Office Hours</b>	Mo 10:00 AM – 12:00 PM

## Course Details

<b>Title</b>	MEC 260: Engineering Statics
<b>Credit</b>	3
<b>Lecture</b>	MoWe 2:40 – 4:00 PM, Staller Center M0113
<b>Recitation-01</b>	Mo 4:25 – 5:20 PM, Earth & Space 181
<b>Recitation-02</b>	We 10:30 – 11:25 AM, Frey Hall 316
<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.

## Tools

**Blackboard:** It is required that you use the [Blackboard](#) for this course. Blackboard is used for facilitation of communications between faculty and students, submission of assignments, posting of the course materials, important announcements, and grades.

**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. There will be no exceptions!

## Textbook

F. Beer and E. Johnston and D. Mazurek, *Vector Mechanics for Engineers: Statics*, 12th Edition, McGraw-Hill Education, 2019 (ISBN-10: 1259977269, ISBN-13: 9781259977268) [[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:
  - (a) **Through Blackboard (Connect + eBook):** Sign in to your [Blackboard](#), Go to MEC260 course, Go to the “Course Tools” menu, Click on the “McGraw-Hill Higher Education” link, Click “Go to My Connect Section” below “McGraw-Hill Connect”, Follow the on-screen instructions to register using your SBU email address, and purchase with either a credit card or Paypal account.
  - (b) **Through McGraw Hill Website (Connect + eBook + Textbook Rental):** Go to the textbook [webpage](#) at McGraw Hill, Click “Bundle” below “Purchase Options”, and purchase a Connect Access Code (+ Textbook Rental). Then, follow the instructions given in option (a) above, and use your SBU email address and the Connect Access 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 (refer to Tentative Course Schedule section).
- Homework should be completed before the due date in McGraw-Hill Connect, which is accessible through Blackboard under Assignments. By clicking on an assignment on Blackboard, you will be automatically sent to the same assignment in Connect.
- The grade you get in Connect will automatically show up in your Blackboard once the due date is passed.
- Your assignment will be automatically submitted on the due date if you forget to submit it before that.
- Solutions can be accessed through Connect by clicking “Submit” in “Study Mode” one hour after the homework is due (this submission does not affect your grade).
- 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. Your highest score will be recorded in Blackboard (it may take a while to see the updated grade on Blackboard). Do not settle for a score less than 100%.
- 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>	Wednesday, Feb. 16, 2022 (in class)
<b>Midterm Exam #2</b>	Wednesday, Mar. 30, 2022 (in class)
<b>Midterm Exam #3</b>	Wednesday, Apr. 27, 2022 (in class)
<b>Final Exam</b> (Comprehensive)	Wednesday, May. 18, 2022, 11:15 – 1:45 PM (in class)

- All the exams are closed book/notes.
- There will be no make-up exams unless provided me an official proof of the reason before, or within three days following the exam. 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</b> (Weighted Equally)	10%
<b>Midterm Exam #1</b>	20%
<b>Midterm Exam #2</b>	20%
<b>Midterm Exam #3</b>	20%
<b>Final Exam</b> (Comprehensive)	30%

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

## 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 grade of **C** or higher is required in MEC 260 to take MEC 262 and MEC 363.
- Grading will not probably be on a curve.

## 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 in the Blackboard Announcements. Please remember to check your SBU email or Blackboard Announcements regularly.

## Tentative Course Schedule

	Monday		Wednesday	
<b>Jan</b>	24	Syllabus, Chapters 1, 2	26	Chapter 2
	31	Chapter 2	2	Chapter 3
<b>Feb</b>	7	Chapter 3	9	Chapter 3
	14	Chapter 4	16	<b>Exam #1</b> (on Chapters 2, 3)
	21	Chapter 4	23	Chapters 4, 5
	28	Chapter 5	2	Chapter 5
<b>Mar</b>	7	Chapter 6	9	Chapter 6
	14	Spring Recess	16	Spring Recess
	21	Chapter 6	23	Chapter 7
	28	Chapter 7	30	<b>Exam #2</b> (on Chapters 4, 5, 6)
<b>Apr</b>	4	Chapter 7	6	Chapter 8
	11	Chapter 8	13	Chapters 8, 9
	18	Chapter 9	20	Chapter 9
	25	Chapter 10	27	<b>Exam #3</b> (on Chapters 7, 8, 9)
<b>May</b>	2	Chapter 10	4	Review

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.

## 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. Until/unless the [latest COVID guidance](#) is explicitly amended by SBU, during Spring 2022 "disruptive behavior" will include refusal to wear a mask during classes. (For the latest COVID guidance, please refer to: <https://www.stonybrook.edu/commcms/strongertogether/latest.php>)

## **Copyright Statement**

Course material accessed from Blackboard or the Stony Brook website is for the exclusive use of students who are currently enrolled in the course. Content from these systems cannot be reused or distributed without written permission of the instructor and/or the copyright holder. Duplication of materials protected by copyright, without permission of the copyright holder, is a violation of the Federal copyright law, as well as a violation of SUNY copyright policy.