MEC 260
ENGINEERING STATICS
Fall 2020

Lecturer: Professor Jay Mendelson
              Office Hours: Mondays 2:00pm-3:30pm

              Will hold online meetings for lectures and office hours via Zoom

Teaching Assts: TBD: Office Hours, email address: TBD
Lectures: MWF 1:00-1:55pm (Online via Zoom Meeting) (Professor Jay Mendelson)
Recitation-01: W 10:30-11:25am (Online via Zoom Meeting) (Professor Juldeh Sesay)
Recitation-02: M 7:50-8:45pm (Mathematics 240) (Professor Juldeh Sesay)
Recitation-03: Tu 8:00-8:50am (Online via Zoom Meeting) (Professor Juldeh Sesay)
Recitation-04: W 7:50-8:45pm (Mathematics 240) (Professor Juldeh Sesay)

All lecture videos will be pre-recorded and stored on www.youtube.com. The lecture time will involve a class-wide Zoom Meeting, in which students can ask questions about the lecture material or homework problems. Two of the four recitations are live Zoom Meetings, and the other two are live classes in a classroom.

Catalog Data: A review of vector algebra. Concept of force. Equilibrium of particles. 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. Prerequisites: PHY 131/133 or 141 or 125, Co-requisite: MAT 203 or AMS 261

Textbook: *Vector Mechanics for Engineers: Statics* 12th Edition, by Beer, Johnston, Mazurek, Cornwell, and Eisenberg, McGraw-Hill Higher Education, ISBN: 9781260689495

Online version of the text and the Connect online homework site is required for homework assignments.

The automatic link from our course in Blackboard has been established in the section of Blackboard called "Course Tools". After clicking on "Course Tools", Click on "McGraw-Hill Higher Education" underneath it, then click on "Go to My Connect Section"

McGraw-Hill Connect

McGraw-Hill Connect is a web-based assignment and assessment platform that helps connect students to their coursework and to success beyond the course.

Go to My Connect Section
Access the McGraw-Hill Connect section associated with this course.
Paired Connect Section: Spring 2020(118198548)

Learn about McGraw-Hill Connect
Learn more about McGraw-Hill Connect.

McGraw-Hill Connect Library
Explore learning resources for your course.

LearnSmart
LearnSmart is an adaptive learning system designed to help students learn faster, study more efficiently, and retain more knowledge for greater success.

Lecture Captures
Students learn better when they're actively engaged with the material. Lecture Capture offers new ways for students to focus on their coursework, both in and out of class.

Synchronize with Section
Request a manual synchronization of this course with its corresponding McGraw-Hill Connect section to refresh the assignment and grade information and to find broken links.

Synchronize Individual Assignments
Manually synchronize individual assignments in this course to refresh assignment and grade information with its associated McGraw-Hill Connect section.

Reset Pairing with Connect Section
Reset the association between this Blackboard Course pairing and a Connect Section. Users will no longer be able to access McGraw-Hill content until the course is re-associated with a section.

Reset Single Sign-On
Reset the single sign-on information that allows you to log into the McGraw-Hill systems automatically. You will have to sign in again the next time you access the McGraw-Hill systems.
Linked McGraw-Hill Account: jay.mendelson@stonybrook.edu

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The first time you click on "Go to My Connect Section", you will also see a screen that gives you instructions on how to pay for the course with credit or debit card. Homework assignments are accessed from Blackboard. (See instructions under **Homework Assignments.**

Attendance: Your attendance is required, and it is a part of your final grade. If you miss 1/3 or more of the classes, you will be penalized one letter grade on your final grade for the class.

Course Objective: Provide the necessary background for further study of MEC 262 Dynamics, MEC 363 Mechanics of Solids, and MEC 364 Fluid Mechanics.

Grading: Homework (20%, all HW's weighted equally), four mid-semester exams (12.5% each), Final Exam (30%).

Grading Scale: Semester letter grade is based upon the grading scale for your aggregate grade. Note: A grade of 'C' or higher is required to take MEC 262 and MEC 363.

$$93 \leq A \leq 100 \qquad 67 \leq C+ < 72$$
$$88 \leq A- < 93 \qquad 62 \leq C < 67$$
$$83 \leq B+ < 88 \qquad 58 \leq C- < 62$$
$$77 \leq B < 83 \qquad 54 \leq D+ < 58$$
$$72 \leq B- < 77 \qquad 51 \leq D < 54 \qquad 0 \leq F < 51$$

Exams: All four mid-semester exams and the final exam will be closed book. The following rules apply:

All exams will be performed online using the McGraw Hill Connect web site. For each exam you will also perform hand-written calculations in a worksheet that you download from Blackboard. Then you upload the worksheet to Blackboard once you complete entering numeric data into the McGraw Hill Connect web site.

For each mid-semester exam, you will be allowed two 8.5" x 11" doubled-sided sheets of paper with your *hand-written* notes. You must put your name on the notes and hand them in with your exam. You must use a blue or black pen for writing in your answers. You may *not* enter information in pencil.

For the final exam you will be allowed eight 8.5" x 11" double-sided sheets of paper with your *hand-written* notes. You must put your name on the notes and hand them in with your exam. You must use a blue or black pen for writing in your answers. You may *not* enter information in pencil.

You may use an MEC department approved scientific calculator for each exam.

Make-up exams must be arranged *prior* to the exams. An unexcused exam absence will be scored as a zero, unless a valid excuse with appropriate documentation is presented to Professor Mendelson within three days following the exam. If you are sick, see your doctor and get a note

Make-up exam policy is consistent with university policy on:
(1) Student Participation in University Sponsored Events.
http://sb.cc.stonybrook.edu/bulletin/current/policiesandregulations/policies_expectations/participation_univsponsered_activities.php
(2) University policy on Final Exams:
http://sb.cc.stonybrook.edu/bulletin/current/policiesandregulations/records_registration/final_examinations.php
(3) New York State Education Law regarding Equivalent Opportunity and Religious Absences
http://sb.cc.stonybrook.edu/bulletin/current/policiesandregulations/policies_expectations/equivopportunity_religiousabsences.php

Allowed Calculators: Following the Mechanical Engineering Department's mandatory calculator policy, **only** the following calculators will be allowed to be used on all exams. There will be no exceptions.

- Casio: All FX-115 models. Any Casio calculator must contain FX-115 in its model name.
- Hewlett Packard: The HP 33s and HP 35s models, but no others.
- Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name.

More details are found in the document.

Calculators 2019.pdf

This list of calculators is identical to that allowed for the *National Council for Examiners for Engineering and Surveying* (NCEES) Fundamentals of Engineering (FE) exam that many of you will take in your senior year, as well as the Professional Engineering (PE) exam that you may take several years from now.

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Homework Assignments:

- Homework is to be completed in McGraw-Hill Connect, which is accessible through Blackboard under Assignments.
- You need a subscription to Connect, which is available through the bookstore or online.
- On each problem, you have 3 opportunities to check your work to see if you have the correct answer. You will also be given 3 tries to do the assignment. Attempts 2 and 3 will each start off with the answers you gave previously. So, if you got a question correct, no need to type in data again. Your highest score will be recorded in Blackboard. Tolerances on numerical answers are set to +/-2% of the nominally correct answer. The start date for an assignment will be at 8AM following the due date for the prior assignment.
- Homework must be submitted online before the due date. Late homework is not acceptable.
- Solutions can be accessed through Connect after the homework is due.

The course in the Connect website is already linked to Blackboard for MEC260. So, you simply click on a Blackboard Assignment, and you will automatically be sent to the assignment in Connect. In addition, the grade you get in Connect will automatically show up in your Blackboard "Grades" page once the due date for the assignment is passed. Here is a sample from the Blackboard Section.

Sample screen in Blackboard is shown here.
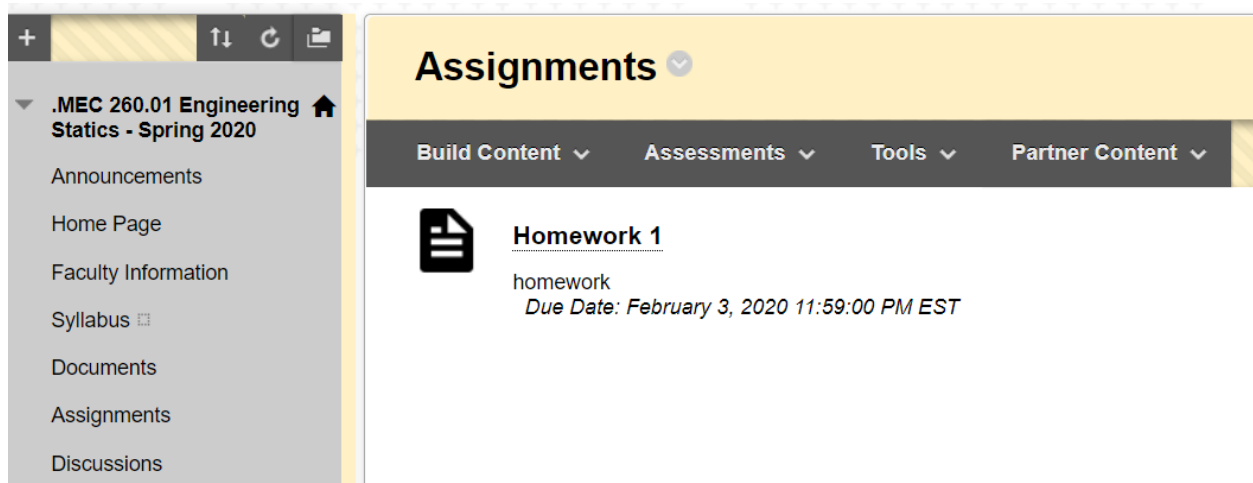
Once you click on Homework 1, you will go to the Homework 1 assignment in the Connect platform. Sample screen at the beginning is shown here.

In Progress...

0/13 questions answered

Assignment details

100 points

Due date: 09/04/2019 at 11:59 PM

Current attempt: **1** of unlimited

Your resources

✓ **Check my work**   *Note: You can use the Check my work feature 10 times.*

◄ **Save and Exit**   **Continue** ❯

Topics:
- Chapter 2: Statics of Particles -vectors, resultant forces, equilibrium, Newton's Law, 2d and 3d problems
- Chapter 3: Rigid Bodies: Equivalent Systems of Forces - vector products, moments, couples, equivalent force/moment systems
- Chapter 4: Equilibrium of Rigid Bodies - free body diagrams, 2d and 3d problems
- Chapter 5: Distributed Forces: Centroids and Centers of Gravity - center of gravity, centroids, first moments of areas and lines
- Chapter 6: Analysis of Structures - trusses, methods of joints and sections, frames and machines
- Chapter 7: Forces in Beams and Cables - internal forces, shear and bending moments
- Chapter 8: Friction - dry friction, coefficient of friction, wedges and screws
- Chapter 9: Distributed Forces: Moments of Inertia - second moments of areas, parallel axis theorem
- Chapter 10: Method of Virtual Work - virtual work, equilibrium, potential energy, stability

Course Learning Objectives:
- Represent force and moment as vectors in a Cartesian coordinate system.
- Algebraically analyze the effect of systems of forces on rigid bodies.
- Draw free body diagrams of rigid bodies and systems.
- Apply vector-based systematic procedures for determining forces in statically determinate systems.
- Calculate centroids, second moments of area, and moments of inertia.

Schedule: Tentative schedule is shown below, but it is subject to change. Do not plan your activities far in advance around the current exam dates shown.

Date	Day	Topic	Homework Due
8/24	M	Syllabus, Chapter 2	
8/26	W	Chapter 2	
8/28	F	Chapter 2	
8/31	M	Chapter 2	HW 1 on Chapter 2
9/2	W	Chapter 2	

9/4	F	Chapter 2	
9/7	M	Labor Day - No Class	HW 2 on Chapter 2
9/9	W	Chapter 3	
9/11	F	Chapter 3	
9/14	M	Chapter 3	HW 3 on Chapter 3
9/16	W	Chapter 3	
9/18	F	Chapter 3	HW 4 on Chapter 3
9/21	M	*Exam I* on Chapters 2 & 3	
9/23	W	Chapter 4	
9/25	F	Chapter 4	
9/28	M	Chapter 4	HW 5 on Chapter 4
9/30	W	Chapter 4	
10/2	F	Chapter 5	HW 6 on Chapter 4
10/5	M	Chapter 5	
10/7	W	Chapter 5	
10/9	F	Chapter 5	HW 7 on Chapter 5
10/12	M	*Exam II* on Chapters 4 & 5	
10/14	W	Chapter 6	
10/16	F	Chapter 6	
10/19	M	Chapter 6	HW 8 on Chapter 6
10/21	W	Chapter 6	
10/23	F	Chapter 6	
10/26	M	Chapter 6	HW 9 on Chapter 6
10/28	W	Chapter 7	
10/30	F	Chapter 7	
11/2	M	Chapter 7	HW 10 on Chapter 7
11/4	W	*Exam III* on Chapters 6 & 7	
11/6	F	Chapter 8	
11/9	M	Chapter 8	
11/11	W	Chapter 8	HW 11 on Chapter 8
11/13	F	Chapter 9	
11/16	M	Chapter 9	
11/18	W	Chapter 9	HW 12 on Chapter 9
11/20	F	*Exam IV* on Chapters 8 & 9	
11/23	M	Thanksgiving Break - No Class	
11/25	W	Thanksgiving Break - No Class	
11/27	F	Thanksgiving Break - No Class	
11/30	M	Chapter 10	
12/2	W	Chapter 10	
12/4	F	Chapter 10	HW 13 on Chapter 10
12/7	M	Catch-up, Review for Final Exam	
TBD	TBD	*Final Exam:* TBD, Somewhere between Dec. 9 and 17	

University Policies and Statements

DISABILITY SUPPORT SERVICES (DSS) STATEMENT: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you

what accommodations, if any, 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 Disability Support Services. For procedures and information go to the following website:
http://www.stonybrook.edu/ehs/fire/disabilities

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

CRITICAL INCIDENT MANAGEMENT: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University 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.