

CVEN 221 Syllabus Spring 2021

Course Information

Course Number: CVEN 221/(201 & 501) (33481 & 10662)

Course Title: Engineering Mechanics: Statics

Sections: 201 & 501

Time & Location: TR 1:30-2:20, 2:30-3:20, ZOOM ROOM TO BE ANNOUNCED

Credit Hours: 3

Instructor Details

Instructor: Lee L. Lowery Jr. P.E., PhD

Phone: (979) 775-5401

E-Mail: Lowery@tamu.edu

Office Hours: By appointment through Zoom as required

Course Description

Introduction to the general principles of mechanics; concurrent force systems; statics of particles; equivalent force/moment systems; centroids and centers of gravity; equilibrium of rigid bodies: trusses, frames, and machines; internal forces in structural members; friction; second moments of area, moments of inertia, radii of gyration.

Course Prerequisites

To take CVEN 221, you must have received a passing grade in PHYS 206 and ENGR 216/PHYS 216 and you must have received a passing grade in or be enrolled in MATH 251 or MATH 253.

Special Course Designation

None.

Course Learning Outcomes

This course focuses on the following major learning objectives:

- (1) To apply general principles of mechanics; including: concurrent force systems; statics of particles; the effects of friction
- (2) To determine and analyze equivalent force/moment systems and centroids and centers of gravity
- (3) To determine degree of statical determinacy and stability.
- (4) To determine and analyze the equilibrium of rigid bodies: trusses, frames, and machines
- (5) To determine and evaluate the internal forces in statically determinate structural members and calculate the second moments of area.

ABET Outcomes Addressed – New (1) – (7)

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Textbook

You will be given access to a free eBook when you pay to register with McGraw-Hill for the required McGraw-Hill homework problems and computer grading:

Electronic Version of Vector Mechanics for Engineers: STATICS, 12th Edition, 2019 by Beer, Johnston, and Mazurek. McGraw-Hill.

Required: Connect 1 Semester Access Card for Vector Mechanics for Engineers: Statics and Dynamics, 12, 2019, net price \$100, ISBN 9781259977114 (this comes with an electronic textbook)

An optional Combo: Loose Leaf notebook of “Statics” with a 1-Semester Access Card, Vector Mechanics for Engineers 12, 2019, is also available for an added \$25 for a net price of \$125, ISBN 9781260265491. See below to purchase from McGraw-Hill.

Resource Materials

There are three central resources for this class throughout the semester: the McGraw-Hill Connect Website (see below), the class lecture materials generated during class on Zoom, and e-Campus. If eCampus dies during the semester we will switch to Canvas or I will just email you any changes in information required during the semester..

McGraw-Hill Connect Website

This website contains your eBook text and it provides the only interface for turning in your required online homework. Membership in this website can be established by entering a code that you purchase at the bookstore or you can simply go to the website and join directly without interfacing with a bookstore (this is the preferred method).

The link to register with McGraw-Hill Connect for this section of CVEN 221 is:

For Lowery’s Section 501: <https://connect.mheducation.com/class/l-lowery-spring-2021-section-501>

For Lowery’s Honors section 201: <https://connect.mheducation.com/class/l-lowery-spring-2021-section-201-honors-1>

Please don’t register for the wrong section. Sometimes it is quite difficult to get that fixed so you can see your grades.

Wondering what an honors section would be like? I would highly recommend one. It looks really good on your resume, and helps you get ahead in your later classes, especially if you take structural classes. Will you work harder, yes, you will. Will you still make a good grade? Depends if you work harder, but you always seem to or you wouldn’t take the challenge.

Honors FAQs

Good information - [Connect Student Registration Video](#):

Connect TECHNICAL SUPPORT/CUSTOMER EXPERIENCE (CXG)

Phone: 1-800-331-5094; Live chat/email: <https://mhedu.force.com/CXG/s/ContactUs>

Mon-Thu: 24 Hours, Fri: 12 AM-9 PM, Sat: 10 AM-8 PM, Sun: 12 PM-12 AM (All Times Eastern USA)

Class Lecture Materials

You should read the assigned text material, review the class lecture materials on e-campus, and work the appropriate online homework prior to the next class meeting (refer to the Assignment and Exam Schedule below).

McGraw-Hill has help with registration, or other questions:

**We have you covered.
Where to go for help:**

Call: (800) 331-5094

Email & Chat: mhhe.com/support

Monday - Thursday: 24 hours

Friday: 12 AM - 9 PM EST

Saturday: 10 AM - 8 PM EST

Sunday: 12 PM - 12 AM EST

e-Campus

Apart from the textbook and online homework assignments, all relevant materials and announcements for this course will be provided on e-Campus (<https://ecampus.tamu.edu/>). All turn-in assignments, tests and associated solutions, and all materials reviewed in class will be posted on e-Campus. **It is your responsibility to check it often for updates.**

Grading

The following grade distribution will be used to calculate student’s final average. A letter grade will be given based on the student’s final average using the scale shown below. It is at the discretion of the instructor whether to adjust (relax only) this scale once all grading is complete.

Item	Timing	Credit
Tests	Class 6, 10, 15, 19, 23 and 27	6 x 10%
Final Exam	Tuesday, December 1, 2020 2:00 pm - 4:30 pm	20%
Turn-in Assignments	Bi-weekly	10%
Online Home Work	Daily	10%
Final Grade:		100%

A=90-100, B=80-89, C=70-79, D=60-69, F=0-59

Dr. W. Lynn Beason’s Grading Rubric will be used to score Quizzes, Exams and Turn-in Assignments
THERE IS NO POSSIBILITY FOR EXTRA CREDIT IN ANY FORM -- EVERYONE IS TREATED EQUALLY.

Free course videos

Dr. Beason previously made a complete lecture series of videos for the topics covered in CVEN 221. He has made them available via the website vimeo.com. I had several students that watched the videos

with all positive experiences. This is another resource for you in CVEN 221, in addition to the eBook and lecture materials. Below are instructions to get to the videos:

- (a) In browser, go to Vimeo.com;
- (b) Open a new account and sign up for FREE (DO NOT PAY);
- (c) Then login to Vimeo using your new sign-in account information;
- (d) In top right search box, type or click on “engineering plain and simple”;
- (e) In the left hand column, under “show results for”, click on “people”;
- (f) Then AGAIN click on the icon for "engineering plain and simple" it will say “260 videos”;
- (g) Then AGAIN go to the LEFT column under “Activity”, click on “Showcases” and under that click on the Chapter of the text you want to see. Each is a full lecture on that chapter of the book.
- (h) Now you can see all the lecture videos for each chapter. They are very well done.

Late Work Policy

Your assigned homework problems are due as listed on the McGraw-Hill website. You will be permitted to work on them past the due date, but your class grade will be locked in at midnight on the due date so be sure to “submit” whatever you have done before that. It will even show you your grade for what you now have correct, but I will only see the due date grade.

Class Lectures

The class schedule is listed in the Assignment and Exam Schedule provided below. The deadline for submission of online homework will be strictly enforced. Your submit each online homework assignment will be automatically disabled at midnight on the indicated due date.

If an exam is missed for a valid university excused reason (see below), then you will be given a common makeup test later in the semester over any topic covered up to that date. If the final exam is missed for a valid university excused reason (see <https://student-rules.tamu.edu/rule07/>) then you will be given a makeup exam after the final exam date.

Class Schedule

Date	Class	Topic(s) To Be Addressed	Chapter Reference
01/19	1	Introduction to Mechanics; Fundamental Principles and Newton’s Laws;	1.1 – 1.2
01/23	2	Units; Problem Solution and Numerical Accuracy; Statics of Particles	1.3 - 1.6, 2.1
01/26	3	Equilibrium of a Particle	2.2 - 2.3
01/28	4	Equilibrium of a Particle	2.4 - 2.5
02/02	5	Force System Resultants/Moment Systems	3.1
02/04	6	Test #1 (Classes 1-4)	

02/09	7	Force System Resultants/Moment Systems	3.2 - 3.3
02/11	8	Force System Resultants/Moment Systems	3.4 - 3.4C
02/16	9	Equilibrium of a Rigid Body	4.1
02/18	10	Test #2 (Classes 5-8)	
02/23	11	Equilibrium of a Rigid Body	4.2 - 4.3
02/25	12	Centroids and Center of Gravity	5.1 - 5.2A
03/04	13	Centroids and Center of Gravity (Hydrostatics)	5.3
03/09	14	Centroids and Center of Gravity (3D)	5.2B, 5.4 - 5.4B
03/11	15	Test #3 (Classes 9-13)	
03/16	16	Structural Analysis (Trusses)	6.1 - 6.1B
03/23	17	Structural Analysis (Trusses II)	6.1C - 6.2
03/25	18	Structural Analysis (Frames)	6.3 - 6.4
03/30	19	Test #4 (Classes 14-17)	
04/01	20	Internal Forces in Structural Members (Beams)	7.1 - 7.2
04/06	21	Internal Forces in Structural Members (Beams)	7.3
04/08	22	Internal Forces in Structural Members (Cables)	7.4A
04/13	23	Test #5 (Classes 18-21)	
04/15	24	Second Moments of Areas	9.1
04/20	25	Second Moments of Areas	9.2
04/22	26	Friction	8.1
04/27	27	Test #6 (Classes 22-25)	
04/29	28	Friction	8.2A

University Policies Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments. Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor. Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines. Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1). "The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2). Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.) Academic Integrity Statement and Policy "An Aggie does not lie, cheat or steal, or tolerate those who do." "Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the

work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (Section 20.1.2.3, Student Rule 20). You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible. It is your responsibility to notify me early in the semester and contact the Office of Disability Services if you intend to exercise your rights under the ADA. The Office of Disability Services is in complete charge of administering the ADA provisions. The Office of Disability Services has very strict rules regarding scheduling and timing. You must clear your participation in the ADA program with the Office of Disability Services early in the semester.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking. With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need. Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS). Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's Title IX webpage.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper selfcare by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org. COVID-19 Temporary Amendment to Minimum Syllabus Requirements

The Faculty Senate temporarily added the following statements to the minimum syllabus requirements in Fall 2020 as part of the university's COVID-19 response.

Campus Safety Measures

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University has adopted policies and practices for the Spring 2021 academic term to limit virus transmission. Students must observe the following practices while participating in face-to-face courses and course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.):

- Self-monitoring—Students should follow CDC recommendations for self-monitoring. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction.
- Face Coverings—Face coverings (cloth face covering, surgical mask, etc.) must be properly worn in all non-private spaces including classrooms, teaching laboratories, common spaces such as lobbies and hallways, public study spaces, libraries, academic resource and support offices, and outdoor spaces where 6 feet of physical distancing is difficult to reliably maintain. Description of face coverings and additional guidance are provided in the Face Covering policy and Frequently Asked Questions (FAQ) available on the Provost website.
- Physical Distancing—Physical distancing must be maintained between students, instructors, and others in course and course-related activities.
- Classroom Ingress/Egress—Students must follow marked pathways for entering and exiting classrooms and other teaching spaces. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- To attend a face-to-face class, students must wear a face covering. If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Student Conduct office for sanctions. Additionally, the faculty member may choose to teach that day's class remotely for all students.

Personal Illness and Quarantine

Students required to quarantine or self-isolate should still participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students under quarantine or self-isolation are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities. Instructors teaching courses delivered only face-to-face should work closely with students who are in quarantine or self-isolation to ensure the student keeps up with the work. Students experiencing personal injury or illness that is too severe for the student to attend class qualify for an excused absence (See Student Rule 7, Section 7.2.2.) To receive an excused absence, students must comply with the documentation and notification guidelines outlined in Student Rule 7.

Copyright Statement

The handouts used in this course are copyrighted. By "handouts," it is meant all materials that have been generated for this course, including those materials generated in all previous semesters. Such materials include but are not limited to syllabi, quizzes, exams, problem sets, worked problems, materials presented the McGraw-Hill Connect website, in-class materials, review sheets, additional problem sets, and/or solutions prepared for these materials. Because these materials are copyrighted, you do not have the right to copy them, or possess copies of them outside of the normal course uses for which they were intended. Certain violations of these copyrights can be treated as violations of academic integrity and will be handled in accordance with the Aggie Honor System Process described on the following web site: <http://aggiehonor.tamu.edu/>