



# ENGR 234

## Engineering Mechanics I: Statics

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### Spring 2022 (Face-to-Face Learning)

- Instructor: Mr. Richard Murray, P.E.  
Office: SCI 121-C  
Contact: via email or MS Teams: [rmurray@coastal.edu](mailto:rmurray@coastal.edu)
- Office hours: TBA following Office Hours Survey Results (or by appointment)
- Homepage: Course Moodle Page
- Textbook: **Required:** R. C. Hibbeler, *Engineering Mechanics: Statics* with MasteringEngineering Access. Go to the course Moodle page and click the link How to Register for MasteringPhysics Video Tutorial which will direct you to a YouTube video tutorial at:  
<https://mediaplayer.pearsoncmg.com/assets/get-started-with-mylab-and-mastering-and-moodle>
- Class Times: Tu/Th 9:25am-10:40am; SCI 117
- Description: This course deals with systems of forces acting on particles and rigid bodies at rest. The course addresses the finding of resultant forces and torques for various bodies. The covered topics include concentrated and distributed forces, equilibrium in two-and three-dimensions, moments, couples, and other key principles used in engineering design of structures that must remain static while bearing stress or performing a task.
- Outcomes: Students will gain an understanding of:
1. methods of particle and rigid body force analysis
  2. the importance of support reactions in real structures, machinery, other static systems
  3. the use of engineering statics in the design process
- Upon completion of this course, student should be able to
1. create mathematical models of static systems (point mass and rigid bodies)
  2. analyze the force balance of point mass and rigid body static systems.
  3. determine support reactions of point mass and rigid body static systems
- ABET: This course directly supports assessment of ABET's student outcome #4:  
"An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts."
- Structure: Overall – The course is broken into 4 units:
- Unit 1: Engineering Ethics and Professional Practice: Engineering endeavors often result in physical devices or infrastructure that can injure or kill if they fail. As a result, we must study the framework used to ensure ethical behavior, and how to function as a professional.
  - Unit 2: Fundamentals: Vectors, particle equilibrium, and force systems.

- Unit 3: Rigid Bodies & Structures: In-depth analysis of rigid body equilibrium and structural analysis (planar trusses & space frames).
- Unit 4: Supplementary Topics: Friction, Centroids, Moments of Inertia, etc.

Pre-Class Assignments – Prior to content being discussed in each class, there will be a reading or video lecture and video demo problem for each topic. There will also be a simple “Warm-Up” problem you must attempt and submit. Your grade for pre-class work is based on watching the videos and attempting the Warm-Up Problem.

In-Class Problem Solving Practice – At the beginning of class we’ll do Q&A about the topic at hand and then quickly transition to solving practice problems. Problems will be submitted for grading.

Homework – You will be assigned homework problems for each topic using MasteringEngineering, based on the material covered in prior efforts.

Deliverables – Throughout the semester, several complex problems will be assigned requiring a formal solution. Details and specifications will be provided when assignments are issued.

Exams – There will be two exams during the regular semester and one during the final exam period. All three are weighted the same. The exams will cover Units 2, 3, and 4, respectively. In general there are no make-up exams; under all but the most dire circumstances, any absence from an exam results in a zero for the exam.

Assessment: Warm-Up Problems: 10%  
 In-Class Practice Problems: 20%  
 MasteringEngineering Homework Problems: 25%  
 Deliverables: 15%  
 Exams: 30%

Grading: Grades will be assigned as follows:

A	90.0 – 100	exceptional work, significantly above the expectations of the course
B+	85.0 – 89.9	
B	80.0 – 84.9	excellent work, solid understanding of all concepts
C+	75.0 – 79.9	
C	70.0 – 74.9	good work, solid understanding of main concepts
D+	65.0 – 69.9	
D	60.0 – 64.9	poor work, weak understanding of main concepts

Contingencies: Named tropical cyclones, global pandemics, and other major disruptions may necessitate changes in how this course is administered. Students are expected to make all reasonable efforts to keep up with coursework throughout the semester. In the event of an evacuation it is your responsibility to bring with you all your work and all the tools you need to complete it, including a computer. Reasonable accommodations will be made for students facing extreme hardships on an individual basis. Prolonged closures or disruptions may necessitate modification of this syllabus and/or course assignments and those modified versions will replace the original materials.

Remote Learning: Some course content including tutorial videos, narrated presentations, and reference materials will be hosted on Moodle. These materials will substitute content that would normally be delivered in-person during lecture portions of regular class meetings.

Attendance: STUD-SENA-332: Unexcused Absence Penalties – an instructor is permitted to impose a penalty, including assigning the grade of F, for unexcused absences in excess of 25 percent of the regularly scheduled class meetings.

STUD-SENA-332 also lists the valid circumstances for an excused absence, e.g. incapacitating illness, official representation of the university, death of a close relative, or religious holidays.

Health & Safety: For the latest university policies regarding COVID-19, visit:  
[https://www.coastal.edu/services/safety\\_and\\_security/covid-19/](https://www.coastal.edu/services/safety_and_security/covid-19/)

Masks are required in the classrooms and those are available upon entry to all classrooms.

Please evaluate your own health status regularly and refrain from attending class and other on-campus events if you are ill. You are encouraged to seek appropriate medical attention for treatment of illness. In the event of contagious illness, please do not come to class or to campus to submit work or meet with me in person. Instead, notify me by email about your absences as soon as possible, so that accommodations can be made. Please note that documentation for excused absences may be required. However, you should not come to class if you are feeling sick, even if you have not seen a doctor.

For those individuals who test positive, it is very important that you inform the University. Students can contact the COVID-19 Call Center by e-mail at [covid@coastal.edu](mailto:covid@coastal.edu) to provide that information. Students are to self-isolate while waiting for a University contact tracer to contact them. Employees should follow the Employee and Supervisor Protocol and complete the COVID-19 Intake Report for Human Resources form online. Employees are to self-isolate while waiting for a University representative to follow up with important information.

Those who receive a positive test result during winter break must complete their isolation requirements before returning to campus. In addition, those exposed to a COVID-19 positive individual and identified as a COVID-19 close contact must complete their quarantine requirements before returning to campus.

Students and families who have general questions about CCU's COVID-19 response can contact the CCU COVID-19 Call Center at 843-349-4100 (from outside the US +1-843-349-4100). The COVID-19 Call Center is staffed Monday through Friday, 10 a.m. to 8 p.m. (EST), and Saturday and Sunday, noon to 8 p.m. (EST).

#### **Updated Quarantine and Isolation Procedures**

CCU has updated the University's quarantine and isolation procedures to align with the shortened quarantine and isolation period recently published by the Centers for Disease Control and Prevention (CDC) and adopted by the SC Department of Health and Environmental Control (DHEC). For more information, visit the quarantine and isolation section of the COVID-19 Operations website:

[https://www.coastal.edu/services/safety\\_and\\_security/covid-19/coastalcomeback/covid-19operations/quarantineandisolation/](https://www.coastal.edu/services/safety_and_security/covid-19/coastalcomeback/covid-19operations/quarantineandisolation/).

- Honesty: "Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. As members of this community, we are accountable for our actions and are committed to creating an atmosphere of mutual respect and trust. On my honor, I pledge that I will take responsibility for my personal behavior; and that I will actively oppose every instance of academic dishonesty as defined in the Code of Student Conduct. From this day forward, my signature on any University document, including tests, papers and other work submitted for a grade, is a confirmation of this honor pledge." In this class, a student's signature on every assignment is a confirmation of this honor pledge and will be treated as such. For this course, a first cheating or plagiarism violation will result in a 'zero' grade for that assignment. A second will result in an automatic failing grade for the course.
- Communication: I will try to respond to emails within one business day. Please use your @coastal.edu email.
- ADA statement: Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services 843-349-2503 or <https://www.coastal.edu/disabilityservices/>.
- Revisions: This syllabus and schedule are tentative and subject to change by the instructor with notice to the student as the semester progresses.