ENGR-2302-101CL
Engineering Mechanics – Dynamics
Spring 2024
9:30 am to 11:20 am
Monday and Wednesday

Instructor Information:
Instructor: Dr. Rebecca Fagan
E-mail: rfagan@com.edu (preferred method of communication)
Office: (409)933-8890

Student hours and location:
Tuesday, Thursday, Friday 9:30am to 12:00pm
Or by appointment
Location: STEAM 325-18

Required Textbook/Materials:

Textbook

Vector Mechanics for Engineers: Statics and Dynamics
Beer, Johnston, Mazurek, Cornwell, and Self
McGraw Hill; 12th edition (2019)
ISBN10: 125963809X

Materials

- Engineer Pad, 5 Squares per Inch, 8.5" x 11", Green (supplied)

Calculators

https://ncees.org/exams/calculator/
NCEES approved calculators will be used for exams. After your first warning, your exam will be collected, and your grade will be a **ZERO** if you are caught using a non-approved calculator.

- Casio: All fx-115 and fx-991 models (supplied)
  (Any Casio calculator must have "fx-115" or "fx-991" 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 (supplied)
  (Any Texas Instruments calculator must have "TI-30X" or "TI-36X" in its model name.)

Online Resources

- COM BrightSpace: https://com.brightspace.com/d2l/home

If you have any questions regarding course access or training, please contact the Distance Education Support Team at https://de-support.com.edu/requests/

Course Description:

- (LECTURE 2, LAB 2). CREDIT 3. ACGM
- Basic theory of engineering mechanics, using calculus, involving the motion of particles, rigid bodies, and systems of particles; Newton's Laws; work and energy relationships; principles of impulse and momentum; application of kinetics and kinematics to the solution of engineering problems.
- Prerequisite: ENGR 2301 with a grade of "C" or better.

Course requirements:

Lectures

- Lectures will cover textbook material.

Homework

- Assignments will be linked to the course material to help reinforce the information covered in lecture.

Exams

- Exam are based on the course textbook material and taken during class time and will consist of multiple choice, T/F, diagram identification, short answer style questions, and show-your-work calculations.

Policy on Electronic Devices

- Once students enter the classroom, all electronic devices should be silenced and put away such that they are not visible. These include cell phones, headphones, ear buds, etc. Students may only use electronic devices if authorized by the instructor.

Determination of Course Grade/Detailed Grading Formula:

The details of how each item will be added to your final total are shown in the following chart.

Task	Total	% of the FINAL grade
Attendance (6 points each)	180	17%
Assignments (15 points each)	360	35%
Exams (100 points each)	500	48%
Total	**1040**	**100%**

Percentage	Letter Grade
90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
0 – 59%	F

Late Work, Make-Up, and Extra-Credit Policy:
Any deviations from the policies described below are at the sole discretion of the instructor.

Assignments

- Late work will be accepted **ONE WEEK** late **ONLY** and given **HALF CREDIT**.

Exams

- There are **NO MAKE-UP** Exams. You may be allowed to replace **ONE** missed exam (documentation required) with the value of your **LOWEST** exam grade. Any additional missed exams will be issued a **ZERO**. Make every effort to NOT miss any exams.

Attendance Policy:
COM recognizes no excused absences other than those prescribed by law: religious holy days and military service https://www.com.edu/student-services/student-handbook.html.

- Students are expected to attend all class sessions as listed on the course calendar.
- Attendance will be taken at the beginning of each class.
- IF you do have to miss class, it is your responsibility to obtain notes from a classmate.
- Missing lectures may affect your overall class performance.
- Should you anticipate an absence, you must contact your instructor by email PRIOR to the absence.
- Each situation will be evaluated independently.
- You must provide legitimate proof for your absence.

Students are not considered to be actively engaged when missing any part of a class. Points per class will be awarded on the schedule presented:

Attendance	**Points per Class**
entire class (full points)	6
partial (late or leaving early)	3
absent	0

Communicating with your instructor: ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means.

Student Learner Outcomes:
Upon successful completion of this course, students will successfully demonstrate mastery of the Student Learner Outcomes listed below.

Student Learner Outcomes*	**Core Objectives****	**Assessed via this Assignment**
1. Express dynamic quantities as vectors in terms of Cartesian components, polar coordinates, and normal-tangential coordinates.	Communication Skills	Quizzes

Student Learner Outcomes*	Core Objectives**	Assessed via this Assignment
2. Compute mass moments of inertia for systems of particles and rigid bodies.	Empirical and Quantitative Skills	Assignments
3. Solve kinematic problems involving rectilinear and curvilinear motion of particles.	Critical Thinking Skills	Assignments
4. Solve kinetic problems involving a system of particles using Newton's Second Law.	Critical Thinking Skills	Assignments
5. Apply the principles of work and energy, conservation of energy, impulse and momentum, and conservation of momentum to the solution of engineering problems involving particles and systems of particles.	Communication Skills	Quizzes
6. Solve kinematic problems involving the translation and rotation of a rigid body.	Critical Thinking Skills	Assignments
7. Solve kinetic problems involving planar translation and rotation of rigid bodies.	Critical Thinking Skills	Assignments
8. Apply the principles of work and energy, conservation of energy, impulse and momentum, and conservation of momentum to the solution of engineering problems involving rigid bodies in planar motion.	Communication Skills	Quizzes

* https://reportcenter.highered.texas.gov/agency-publication/guidelines-manuals/lower-division-academic-course-guide-manual-spring-2020/

** https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/waar-faq-texas-core-curriculum/

Academic Dishonesty:

- College of the Mainland is committed to a high standard of academic integrity. In becoming a part of the academic community, students are responsible for honesty and independent effort. Incidents of academic and scholastic dishonesty (including cheating, plagiarism, and collusion) will be dealt with in a manner consistent with College Policy and the Student Handbook.
- Violations may result in a penalty. The maximum penalty will be a grade of “F” for the course. Violations may also be reported to the Judicial Coordinator as instances of Inappropriate Behavior. Please see the section on Privileges and Obligations in the Student Handbook for a more complete discussion of Inappropriate Behavior, and of your rights and responsibilities.
- There are many situations where you will be required to submit written work to earn points. It is important that the work you submit be your own. You cannot copy the work of another, or have your work copied by another. Doing so will be considered a violation of Academic Honesty.
- The work that you submit must be a product of your own mind. When completing assignments, for example, you are encouraged to collaborate with others to try to come to an understanding. But when you set pen to paper to write your answer, what you write must be a product of your own mind. When identical, or nearly identical, writings are submitted by

students, it will lead me to suspect that work was copied. You could then be in violation of the standards of academic honesty, as described above.

Student Concerns:
If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact the department chairperson, Professor Sheena Abernathy, either in person, by telephone at 409-933-8330, or by email at sabernathy@com.edu.

Course outline:
ENGR-2302-101CL, Dynamics – Tentative Course Schedule

Class	Date	Lecture Topic	Assignment Due
—	Monday, January 15	**NO CLASS**	—
1	Wednesday, January 17	Chapter 11 – Kinematics of Particles	—
2	Monday, January 22	Chapter 11 – Kinematics of Particles	#01
3	Wednesday, January 24	Chapter 11 – Kinematics of Particles	#02
4	Monday, January 29	Chapter 11 – Kinematics of Particles	#03
5	Wednesday, January 31	Chapter 11 – Kinematics of Particles	#04
6	Monday, February 05	Chapter 12 – Kinematics of Particles: Newton's Second Law	#05
7	Wednesday, February 07	Chapter 12 – Kinematics of Particles: Newton's Second Law	#06
8	Monday, February 12	Chapter 13 – Kinematics of Particles: Energy and Momentum	#07
9	Wednesday, February 14	Exam 1 - Chapters 11 & 12	—
10	Monday, February 19	Chapter 13 – Kinematics of Particles: Energy and Momentum	#08
11	Wednesday, February 21	Chapter 13 – Kinematics of Particles: Energy and Momentum	#09
12	Monday, February 26	Chapter 14 – System of Particles	#10
13	Wednesday, February 28	Chapter 14 – System of Particles	#11
14	Monday, March 04	Chapter 15 – Kinematics of Rigid Bodies	#12
15	Wednesday, March 06	Exam 2 - Chapter 13 & 14	—
Spring Break, March 11 – 17			

Class	Date	Lecture Topic	Assignment Due
16	Monday, March 18	Chapter 15 – Kinematics of Rigid Bodies	#13
17	Wednesday, March 20	Chapter 15 – Kinematics of Rigid Bodies	#14
18	Monday, March 25	Chapter 15 – Kinematics of Rigid Bodies	#15
19	Wednesday, March 27	Chapter 15 – Kinematics of Rigid Bodies	#16
20	Monday, April 01	Chapter 15 – Kinematics of Rigid Bodies	#17
21	Wednesday, April 03	Chapter 15 – Kinematics of Rigid Bodies	#18
22	Monday, April 08	Chapter 16 – Plane Motion of Rigid Bodies: Forces and Acceleration	#19
23	Wednesday, April 10	Exam 3 - Chapter 15	—
24	Monday, April 15	Chapter 16 – Plane Motion of Rigid Bodies: Forces and Acceleration	#20
25	Wednesday, April 17	Chapter 17 – Plane Motion of Rigid Bodies: Energy and Momentum Methods	#21
26	Monday, April 22	Chapter 18 – Kinetics of Rigid Bodies in Three Dimensions	#22
27	Wednesday, April 24	Exam 4 - Chapter 16 & 17	—
28	Monday, April 29	Chapter 19 – Mechanical Vibrations	#23
29	Wednesday, May 01	Chapter 19 – Mechanical Vibrations	#24
30	Monday, May 06	Exam 5 - Chapter 18 & 19	—
—	Wednesday, May 08	**NO CLASS**	—

Changes to this syllabus could be made at the discretion of the instructor and will be announced in class and on **D2L**.

Institutional Policies and Guidelines

Grade Appeal Process: Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook https://www.com.edu/student-services/docs/Student_Handbook_2023-2024_v2.pdf. *An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor's professional judgment of the quality of the student's work and performance is also not an admissible basis for a grade appeal.*

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

ADA Statement: Any student with a documented disability needing academic accommodations is requested to contact Kimberly Lachney at 409-933-8919 or klachney@com.edu. The Office of Services for Students with Disabilities is located in the Student Success Center.

Textbook Purchasing Statement: A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Withdrawal Policy: Students may withdraw from this course for any reason prior to the last eligible day for a "W" grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1st 8-week session is February 28. The last date to withdraw from the 16-week session is April 22. The last date to withdraw for the 2nd 8-week session is May 1. The last date to withdraw for spring mini session is May 29.

FN Grading: The FN grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The FN grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the FN grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an FN grade.

Early Alert Program: The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

Resources to Help with Stress:
If you are experiencing stress or anxiety about your daily living needs including food, housing or just feel you could benefit from free resources to help you through a difficult time, please click here https://www.com.edu/community-resource-center/. College of the Mainland has partnered with free community resources to help you stay on track with your schoolwork, by addressing life issues that get in the way of doing your best in school. All services are private and confidential. You may also contact the Dean of Students office at deanofstudents@com.edu or communityresources@com.edu.