



Course Syllabus: Dynamics

College of Science, Mathematics, and Engineering
MENG 2213 Section 101
Fall 2026
MWF 8:00 am – 8:50 am
MY 207

Contact Information

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Course Description

Kinematics and kinetics of particles and rigid bodies in plane motion. Work-energy and impulse-momentum principles.

Course Pre-requisites

MENG 2113

Textbook & Instructional Materials

Engineering Mechanics Dynamics, 15th Edition, R. C. Hibbeler, PEARSON.

Contribution of Course to Professional Component

This course contributes to the engineering science component of the Mechanical Engineering program.

Course Format

This course consists of three 50-minute sessions each week. Class time will be used to introduce concepts and apply these to relevant problems. Lectures will not be used to communicate the entire course content and thus, you will have to study some of the course materials on your own

Specific Goals of Instruction

Table 1: A detailed list of course objectives matched with the ABET outcomes (1-7)

Specific Outcomes of Instruction	1	2	3	4	5	6	7
Given a relevant problem, students will specify rectilinear and curvilinear motion of a particle (assignment, exams).	X	–	–	–	–	–	–
Given a relevant problem, students will specify particle equations of motion (assignment, exams).	X	–	–	–	–	–	–
Given a relevant problem, students will specify particle system equations of motion (assignment, exams).	X	–	–	–	–	–	–
Given a relevant problem, students will specify rigid body equations of motion (assignment, exams).	X	–	–	–	–	–	–
Given a relevant problem, students will specify work-energy relationships for particles and/or rigid bodies (assignment, exams).	X	–	–	–	–	–	–
Given a relevant problem, students will specify impulse-momentum relationships for particles and/or rigid bodies (assignment, exams).	X	X	–	–	–	X	–
Given a relevant problem, students will determine kinematic behavior of particles and/or rigid bodies with respect to a rotating coordinate system (assignment, exams).	X	–	–	–	–	–	–

Table 2: Detailed descriptions of the ABET outcomes (1-7) listed in Table 1.

ABET Outcome	DESCRIPTION
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2	an ability to apply engineering design to produce solutions that meets specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3	an ability to communicate effectively with a range of audiences.
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.
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Attendance

You are expected to attend class regularly and are responsible for notes, homework assignments, quizzes, and exams missed while being absent. More than 5 times

absences without decent excuses will lead the students' failure. In case of inclement weather, visit the MSU Texas webpage for updates, and follow the requested procedures accordingly.

Instructor Class Policies

Once class starts, the use of cell phones, reading newspapers, conducting private discussions, using the computer (unless asked by your instructor), working on anything that is not directly related to the course, and making derogatory remarks about your classmates or instructor will not be accepted and may result in your dismissal from the class.

Homework

All homework assignments will be due in the class period listed as the due date. They can also be submitted online on Assignments folder by the due date. Points will be deducted for late submissions. If assignment is submitted after the solutions are provided, it will be graded only for 60% of total points.

Since writing, analytical, and critical thinking skills are part of the learning outcomes of this course, all writing, problem solving, and coding assignments should be prepared by the student. Developing strong competencies in this area will prepare you for a competitive workplace. AI-generated submissions are not permitted unless specifically requested by the instructor.

Evaluation Method

Your performance will be tested regularly throughout the semester by in-class quizzes, two midterm exams, final exam, and several homework assignments. There will be homework assignments for discussed chapters, two quizzes, and three exams. While several homework problems may be assigned as part of each homework assignment, it may be the case that only a subset of problems will be graded. However, you must attempt all problems. Do not try to guess which (if any) problems will not be graded.

Exams

There will be two midterm exams and one final exam for the course. No AI glasses or smart calculators (any calculator that is able to store files) are allowed. The final exam is scheduled on ***Wednesday, December 9, 2026 from 8:00 am to 10:00 am.**

Make Up Work/Tests

You are expected to take the exams on the scheduled date and time in class when it is given. However, if for some acceptable reason you are not able to do so, then you must inform the instructor in advance. The instructor will then decide whether you will be allowed to take a make-up exam, depending on the validity of your excuse. No exceptions will be made, unless an official written statement is given by a physician or attorney.

Grading

The final grade for the course will be based on the scores of exams, quizzes, and homework. Two of the lowest homework scores will be dropped unless the instructor states that a particular assignment may not be dropped. Mid-term exams I & II account for 20% each of the course grade, final exam account for 30% of the course grade, the Quiz scores accounts for 15% of the course grade, the homework assignments account

for 10% of the course grade, and attendance accounts for 5% of the course grade. The overall score and grade for the course is determined as follows:

Table 3: Points allocated to each assignment

Assignments	Percent
Quizzes Average (2 at 100 pts each)	15%
Homework Average	10%
Midterm Exam 1	20%
Midterm Exam 2	20%
Attendance and Participation	5%
Final Exam	30%
Total Grade	100%

Table 4: Total points for final grade.

Grade	Points
A	90% to 100%
B	80% to 89.99%
C	70% to 79.99%
D	60% to 69.99%
F	Less than 60%

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

[Office of Student Conduct](#)

Moffett Library

Moffett Library provides resources and services to support student's studies and assignments, including books, peer-reviewed journals, databases, and multimedia materials accessible both on campus and remotely. The library offers media equipment checkout, reservable study rooms, and research assistance from librarians to help students effectively find, evaluate, and use information. Get started on this [Moffett Library webpage](#) to explore these resources and learn how to best utilize the library.

Extra Credit

Extra Credit opportunity may be provided for additional activities specified by the instructor.

General Guidelines

- Plan on spending appropriate time outside of class each week to study the material and to work on homework assignments. Do not wait until the last day to start the homework or to prepare for the exams.
- Read the course material before coming to class.
- Utilize the office hours throughout the semester.
- Although you are strongly encouraged to study in group, you must work individually when you solve homework problems.

Important Dates

- Last day for term schedule changes: Check date on [Academic Calendar](#).
- Deadline to file for graduation: Check date on [Academic Calendar](#).
- Last Day to drop with a grade of "W:" Check date on [Academic Calendar](#).
- Refer to: [Drops, Withdrawals & Void](#)

Student Handbook

Refer to: [Student Handbook](#)

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Recording Classes

****Recording classes is generally prohibited without the professor's explicit permission.*** Such recordings, when permitted, are for personal use only and may not be uploaded to the internet or otherwise shared, transmitted, or published without the professor's prior consent. Some faculty may not permit recordings of their classes. When it is feasible and appropriate, students may record classes to accommodate disabilities under the Americans With Disabilities Act, with prior approval of Disability Support Services. Such recordings may not be uploaded to the internet or otherwise shared, transmitted, or published.

Conflict Resolution

- The student should contact the instructor face to face or via e-mail if there is an issue with the course or the instructor. The faculty and the student will discuss this face to face or via email. Hopefully a resolution is reached on the issue.
- The student should notify the faculty via email again if the issue still did not get resolved after the first encounter or communication.
- The student can then contact the Chair of the McCoy School of Engineering, Dr. Desai, face to face or via email, (raj.desai@msutexas.edu), and discuss this issue. Dr. Desai will discuss the issue at hand with the faculty member. Dr. Desai will discuss the

result of this discussion with the student. Hopefully a resolution is reached on the issue after this.

- The student should notify the Chair via email if the issue still did not get resolved.
- The Chair will contact the Dean and try to resolve the conflict. In case the conflict deals with the student grade, she will forward the case to the Grade Appeals Committee if necessary.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Student Wellness Center, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

Emergency Aid Resources for Basic Needs

Unexpected life circumstances can affect anyone. If you are experiencing challenges meeting basic needs—such as housing, utilities, food, transportation, healthcare, technology, textbooks or other life necessities, resources may be available to help. Visit the [Student Emergency Support and Resources webpage](#) to learn more, and explore emergency support opportunities through MSU and how to access them. For additional information, please contact the Office of Student Affairs: Clark Student Center #108, (940) 397-7500, student.affairs@mstuexas.edu.

College Policies

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Smoking/Tobacco Policy

Midwestern State University seeks to provide a safe, healthy, pleasant environment for its faculty, staff, and students. To this end, the use of tobacco products, including smoke and smokeless tobacco, and the advertising, sale, free distribution, and discarding of tobacco products shall be prohibited in all indoor and outdoor facilities and in all university vehicles. The policy extends to faculty, staff, students, vendors, guests, and visitors.

Alcohol and Drug Policy

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Campus Carry

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes has prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry](#).

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [MSUReady – Active Shooter](#). Students are encouraged to watch the video entitled "Run. Hide. Fight." which may be electronically accessed via the University police department's webpage: ["Run. Hide. Fight."](#)

Grade Appeal Process

Update as needed. Students who wish to appeal a grade should consult the Midwestern State University [MSU Catalog](#)

***Notice:** Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

Course Schedule:

Topics Covered	Assignments/Exams	Due Date
Introduction and Kinematics of a Particle	HW 1-4, Quiz 1	TBD
Kinetics of a Particle: Force and Acceleration	HW 5	TBD
Kinetics of a Particle: Work and Energy	HW 6, Exam 1	TBD
Kinetics of a Particle: Impulse and Momentum	HW 7	TBD
Planar Kinetics of a Rigid Body	HW 8, Quiz 2	TBD
Planar Kinetics of a Rigid Body: Force and Acceleration	HW 9, Exam 2	TBD
Planar Kinetics of a Rigid Body: Work and Energy	HW 10	TBD
Planar Kinetics of a Rigid Body: Impulse and Momentum	HW 11	TBD
Review	Final Exam	Dec 09