

MECH 2340 Dynamics

Course Syllabus

Fall 2022

Time and Location: T TR 10:30 am - 11:50 pm, 107 Liberal Art

Instructor: Hossein Mallahzadeh, Ph.D
E-mail: hmallahzade@utep.edu
Office hours: Monday (2:00 – 3:00 pm) and Tuesday (9:30-10:30 am)
Office location: Engineering Building, Room E-329
Teaching Assistant: TBA
TA's office hours: TBA
TA's office location: TBA

Reference Textbooks:

Mechanics Dynamics by R. C. Hibbeler, 14th edition

Blackboard: The instructor will use Blackboard for uploading lectures, updating the syllabus (if necessary), and communicating with students via “Announcements” and email.

Prerequisites: Prerequisites: Mechanics of Materials.

Course Objective:

At the end of this class the typical students should be well prepared in the following areas:

- Determine the kinematic quantities (position, displacement, velocity, and acceleration) of a particle traveling along straight and curved paths.
- Apply the equation of motion using the rectangular coordinates, or the normal and tangential coordinates.
- Apply the principle of work and energy to a particle or system of particles.
- Calculate the linear momentum of a particle and linear impulse of a force.
- Determine the mass moment of inertia of a rigid body or a system of rigid bodies.
- Apply the three equations of motion for a rigid body in planar motion.
- Analyze the planar kinetics of a rigid body undergoing rotational motion.
- Analyze the planar kinetics of a rigid body undergoing general plane motion.
- Define the various ways a force and couple do work.
- Apply the principle of work and energy to a rigid body.

- Determine the potential energy of conservative forces.

Topics covered

1. Kinematic of a Particle
2. Kinematic of a Particle: Force and Acceleration
3. Kinematic of a Particle: Work and Energy
4. Kinematic of a Particle: Impulse and Momentum
5. Planar Kinematic of a Rigid Body
6. Planar Kinematic of a Rigid Body: Force and Acceleration
7. Planar Kinematic of a Rigid Body: Work and Energy

Exams: There are midterm exams.

Exam dates: 9/27, 10/25 and 11/17.

Grading

Your final grade for this course will be based on the following activities

Assignments	Percentage
Midterm Exams (3x)	75%
Homework	25%
Total	100%

Grade Scale	
100-90%	A
89-80%	B
79-70%	C
69-60%	D
<60%	F

The instructor reserves the right to revise this grading plan.