MECH 3345 System Dynamics

Course Syllabus

Fall 2025

Time and Location: MW 12:00- 1:20 PM, Educational Building 301

Instructor: Hossein Mallahzadeh, Ph.D

E-mail: hmallahzade@utep.edu

Office hours: WR 10-11 AM

Reference Textbooks:

Palm, W. J. System dynamics. McGraw-Hill Higher Education. 3rd Edition.

Blackboard:

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

Required Material/Software: MATLAB

Prerequisites: Electromechanical systems and Dynamics

Course Description: The course educates students in system modelling, time-domain performance analysis, and frequency-domain analysis.

Course Objective:

1. Students will use mathematical tools and physical laws to represent mechanical and electromechanical systems.
2. Students will use computer tools to validate and analyze dynamical systems.

TOPICS COVERED

1. Dynamic response and Laplace transform method
2. Transfer function
3. Rigid-body mechanical systems
4. Spring damper mechanical systems
5. Electrical Systems
6. Electromechanical systems
7. State space representation
8. System analysis in time domain
9. System analysis in frequency domain

Exams: There are three midterm exams.

Exam dates: 9/24, 10/22 and 11/19

Grading

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

Assignments	Percentage
Exams (3x)	75%
Homework	15%
Quiz	10%
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.

NO extensions are given in homework or quizzes.