MECH 3345 System Dynamics
Course Syllabus
Fall 2023

Time and Location: TR 3:00 – 4:20,

Instructor: Hossein Mallahzadeh, Ph.D
E-mail: hmallahzade@utep.edu

Office Hour: T and W 10:30-11:30

Teaching Assistant:

Reference Textbooks:

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 OBJECTIVES:
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:** 9/26, 10/24 and 11/21

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

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (3x)</td>
<td>75%</td>
</tr>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Quiz</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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**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.