<table>
<thead>
<tr>
<th>Course Title</th>
<th>MECH 4346 Mechatronics</th>
<th>Fall/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTRUCTOR:</td>
<td>Angel Flores-Abad Office: Engineering Building, Room E331, <a href="mailto:afloresabad@utep.edu">afloresabad@utep.edu</a></td>
<td></td>
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<tr>
<td>ASSISTANTS:</td>
<td>Eduardo García, Email: <a href="mailto:egarcia74@miners.utep.edu">egarcia74@miners.utep.edu</a></td>
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<tr>
<td>OFFICE HOURS:</td>
<td>3:00 PM to 4:00 pm MWs</td>
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<tr>
<td>Lecture:</td>
<td>Chemistry Computer Sci Bldg G.0208</td>
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<tr>
<td>LAB:</td>
<td>E-102B Intelligent systems laboratory</td>
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<tr>
<td>COURSE DESCRIPTION:</td>
<td>System modeling; system stability; time-domain performance analysis; root-locus technique; frequency-domain analysis; control system design, and electronic control of a Mechanical System.</td>
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<td>PREREQUISITES:</td>
<td>ME 2342 Electromechanical systems or consent of the instructor</td>
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**Software**
- Matlab
- Adams
- Proteus
- Arduino language

**TEXTBOOKS:**

**GRADING:**
- Class assignments: 40%
  - paper-based and software-based homework
  - Labs (5 students per team)
  - Own learning activities
- Test 1 (Midterm): 20%
- Test 2 (Midterm): 20%
- Final Project (10 students per team): 20%
- Final Exam (Comprehensive): Only for students with a final overall grade below 70%. It is not optional. Will replace the grade of your lowest midterm.

**ESCALE**
- A ≥ 90
- B ≥ 80 but <90
- C ≥ 70 but <80
- D ≥ 60 but <70
- F <60
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| TOPICS COVERED: | • Spatial Descriptions and Transformations.  
  • Mathematical modeling of Dynamics Systems  
    o Transfer function  
    o State space representation.  
  • Transient response  
    o First-order systems  
    o Second-order systems  
  • Stability Analysis and close-loop control design.  
    o Root locus analysis.  
    o Frequency response. | |
| OBJECTIVES / EXPECTATIONS | • Students should have understanding on how to model and simulate mechatronic systems.  
  • Students should be able to apply automatic control techniques in a simulation environment as well as in real time implementation. | |
| MATERIAL FOR CLASS | • Calculators: Simple scientific calculators are allowed. For example: TI-30X, HP33S and HP35S. Programmable calculators or those with advanced functions (\( \int \), vectors and matrices) are not allowed. Those are the same calculators that are currently being allowed in the Fundamental of Engineering (FE) and Professional Engineering (PE) exams [http://ncees.org/exams/calculator-policy/]  
  • Laptop. | |
| ATTENDANCE POLICIES: | Attending to the labs is mandatory. | |
| AUTHOR/DATE: | Angel Flores-Abad | 8/24/2015 |