

<b>Course Title</b>	<b>MECH 2342 Electromechanical Systems</b> <span style="float: right;"><b>Spring/2016</b></span>
<b>INSTRUCTOR:</b>	Angel Flores-Abad, Office: Engineering Building, Room E331, Email: afloresabad@utep.edu
<b>OFFICE HOURS:</b>	TR11:00 – 112:00 hrs.
<b>Lecture</b>	College of Business Admin 313
<b>Laboratory</b>	E-102B Intelligent systems laboratory
<b>PREREQUISIT</b>	MATH 1312: Calculus II
<b>COURSE DESCRIPTION:</b>	The course educates students in circuit analysis of measuring systems, sensors and actuation building on concepts learned in mathematics, sciences and engineering courses.
<b>COURSE OBJECTIVES:</b>	<ul style="list-style-type: none"> <li>• Students will demonstrate the application of mathematics, sciences and engineering principles in analyzing basic electrical circuits and modern measurement systems.</li> <li>• The students will apply basic electrical circuits in actuation, controls and sensors.</li> </ul>
<b>TEXTBOOKS:</b>	<p>[1] Electrical engineering: principles and applications by Hambley, A. R, 6th Edition. Published by Pearson Prentice Hall. With Mastering Engineering. <b>(Required)</b></p> <p>[2] Additional reference materials may be handed out in class.</p>
<b>SOFTWARE:</b>	NI Multisim, Arduino Software and Matlab.
<b>GRADING:</b>	<ul style="list-style-type: none"> <li>• Assignments (homework, labs, quizzes, etc.) <span style="float: right;">40%</span></li> </ul> <p>From historical data, each assignment is worth 2-2.5% of your final grade.</p> <ul style="list-style-type: none"> <li>• Test 1 (Midterm 1): <span style="float: right;">25%</span></li> <li>• Test 2 (Midterm 2): <span style="float: right;">25%</span></li> <li>• Project: <span style="float: right;">10%</span></li> <li>• Final Exam (Comprehensive) <ul style="list-style-type: none"> <li>○ <b>Only</b> for students with a final overall grade below 70%. Is it not optional.</li> <li>○ Will replace the grade of one of your midterms.</li> </ul> </li> </ul> <p><b>ESCALE</b>  A ≥ 90  B ≥ 80 but &lt;90  C ≥ 70 but &lt;80  D ≥ 60 but &lt;70  F &lt;60</p> <p><b>NOTE:</b> There will not be make up exams. If you miss an exam due to a UTEP approved reason (see the catalog) I will count the next exam as two scores.</p>
<b>TOPICS COVERED</b> <b>Midterm 1: March 3</b>	1. DC Electric circuit analysis: Circuits with resistors
<b>Midterm 2: April 28</b>	2. DC Electric circuit analysis: Circuits with resistors, capacitors and inductors. 3. AC Circuit analysis
<b>Final Exam:</b>	TBA

Course Title	MECH 2342 Electromechanical Systems		Spring/2016
<b>TOPICS COVERED</b>	<ul style="list-style-type: none"> <li>• Power and Energy.</li> <li>• Kirchhoff's Voltage, Current Laws and Capacitance.</li> <li>• Capacitance and Inductance with RC and RL Circuits.</li> <li>• Transient Analysis</li> <li>• Sinusoidal Analysis</li> <li>• Frequency response</li> <li>• Logic Circuits, Microcontrollers</li> <li>• Diodes</li> <li>• Bipolar Junction Transistors</li> <li>• Field Effect Transistors</li> <li>• Operational Amplifiers</li> <li>• Computer-based instrumentation</li> <li>• DC and AC machines.</li> <li>• Computer-based instrumentation.</li> </ul>		
<b>MATERIAL FOR CLASS</b>	<ul style="list-style-type: none"> <li>• Calculators: Simple scientific calculators are allowed. For example: TI-30X, HP33S and HP35S. Programmable calculators or those with advanced functions ( <math>\int</math> , <math>dx</math>, 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 (<a href="http://ncees.org/exams/calculator-policy/">http://ncees.org/exams/calculator-policy/</a>)</li> <li>• Laptop.</li> </ul>		
<b>MATERIAL FOR LABS</b>	<ul style="list-style-type: none"> <li>• 1 Arduino starter kit.  <a href="http://www.amazon.com/Arduino-Starter-Official-170-page-Projects/dp/B009UKZV0A/ref=sr_1_2?ie=UTF8&amp;qid=1432774549&amp;sr=8-2&amp;keywords=arduino">http://www.amazon.com/Arduino-Starter-Official-170-page-Projects/dp/B009UKZV0A/ref=sr_1_2?ie=UTF8&amp;qid=1432774549&amp;sr=8-2&amp;keywords=arduino</a></li> <li>• 1 Multimeter.  <a href="http://www.amazon.com/Digital-VOLT-Meter-Voltmeter-Multimeter/dp/B005EK3NRS/ref=sr_1_3?ie=UTF8&amp;qid=1409076820&amp;sr=8-3&amp;keywords=multimeter">http://www.amazon.com/Digital-VOLT-Meter-Voltmeter-Multimeter/dp/B005EK3NRS/ref=sr_1_3?ie=UTF8&amp;qid=1409076820&amp;sr=8-3&amp;keywords=multimeter</a></li> </ul>		
<p>The above schedule, policies, and assignments in this course are subject to change in the event of contingency or by mutual agreement between the instructor and the students.</p>			