Course Title	**MECH 2342 Electromechanical Systems** **Fall/2015**
INSTRUCTOR:	Angel Flores-Abad, Office: Engineering Building, Room E331, Email: afloresabad@utep.edu
OFFICE HOURS:	TR 9:30 – 10:30 hrs.
Lecture	Physical Science Building 208
Laboratory	E-102B Intelligent systems laboratory
PREREQUESIT	MATH 1312: Calculus II
COURSE DESCRIPTION:	The course educate students in circuit analysis of measuring systems, sensors and actuation building on concepts learned in mathematics, sciences and engineering courses.
COURSE OBJECTIVES:	• Students will demonstrate the application of mathematics, sciences and engineering principles in analyzing basic electrical circuits and modern measurement systems. • The students will apply basic electrical circuits in actuation, controls and sensors.
TEXTBOOKS:	[1] Electrical engineering: principles and applications by Hambley, A. R, 6th Edition. Published by Pearson Prentice Hall. With Mastering Engineering. (**Required**) [2] Introduction to Mechatronics and Measurement Systems by David G. Alciatore (4th Edition). Published by McGraw-Hill. [3] Additional reference materials may be handed out in class.
SOFTWARE:	NI Multisim, ISIS Proteus, Matlab and Arduino Software.
GRADING:	• Assignments (homework, labs, quizzes, etc.) 35% • Test 1 (Midterm 1): 25% • Test 2 (Midterm 2): 25% • Project: 15% • Final Exam (Comprehensive) o **Only** for students with a final overall grade below 70%. Is it not optional. o Will replace the grade of one of your midterms. **ESCALE** A ≥ 90 B ≥ 80 but <90 C ≥ 70 but <80 D ≥ 60 but <70 F <60 **NOTE:** 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.
TOPICS COVERED Midterm exam 1: 06 Oct	1. DC Electric circuit analysis: Circuits with resistors
Midterm exam 2: 12 Nov	2. DC Electric circuit analysis: Circuits with resistors, capacitors and inductors. 3. AC Circuit analysis
Final Exam:	Thursday Dec 10, 1:00-3:45 PM.

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TOPICS COVERED	• Power and Energy. • Kirchhoff's Voltage, Current Laws and Capacitance. • Capacitance and Inductance with RC and RL Circuits. • Transient Analysis • Sinusoidal Analysis • Frequency response • Logic Circuits, Microcontrollers • Diodes • Bipolar Junction Transistors • Field Effect Transistors • Operational Amplifiers • Computer-based instrumentation • DC and AC machines. • Computer-based instrumentation.
MATERIAL FOR CLASS	• Calculators: Simple scientific calculators are allowed. For example: TI-30X, HP33S and HP35S. Programmable calculators or those with advanced functions ($\int$, dx, 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.
MATERIAL FOR LABS	• 1 Arduino starter kit. http://www.amazon.com/Arduino-Starter-Official-170-page-Projects/dp/B009UKZV0A/ref=sr_1_2?ie=UTF8&qid=1432774549&sr=8-2&keywords=arduino • 1 Multimeter. http://www.amazon.com/Digital-VOLT-Meter-Voltmeter-Multimeter/dp/B005EK3NRS/ref=sr_1_3?ie=UTF8&qid=1409076820&sr=8-3&keywords=multimeter
ATTENDANCE POLICIES:	Attendance will be taken randomly through the semester. You could receive an F grade if you miss more than three classes.
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.	