

Course Title	MECH 2342 Electromechanical System (Fall 2016): Credit: 3
Instructor	Dr. A. R. Khan (Email: arkhan@utep.edu): Room: Eng. Bld. A-317
Class location	TR: 1:30-2:50, Business admin, Room: 313 (Aug. 22 to Dec 1, 2016)
Laboratory	E-102B Intelligent System Laboratory
Course Prerequisite	MATH 1312 (Calculus-II)
Course Description	Electromechanical system requires basic knowledge on electrical circuits and circuit analysis, electronic device, digital system, electromechanics, etc. appropriate for Electrical, Mechanical, Industrial, Civil, Chemical, Computer, Spacecraft engineering and Space science education, etc.
Course Objective	This course educates students in both analog and digital circuit analysis in order to build and measure system with various sensors and to develop various concepts learned in Mathematics, Science and Engineering. This course will also improve the ability to identify, formulate and solve engineering problems using basic human intuition and instinct.
Course Topics	<ul style="list-style-type: none"> • Introduction (Power, Energy, Current, Voltage, Circuits) • Resistance, Capacitance and Inductance (RLC circuits) • Transients and Sinusoidal Signal Analysis and Filters • Diode, Bipolar and Field-Effect Transistors • Operational Amplifiers • Magnetic Circuits and Transformers • DC and AC Machines • Logic Circuits and Microcontrollers. • Computer Based Instrumentations (LabVIEW)
Reference Books	<ol style="list-style-type: none"> 1. Electrical Engineering: Principle and Applications by A. R. Hambley (Sixth Edition, Published by PEARSON) 2. Additional Reference materials (notes, web links, etc.) may be handed out in class.
Reference Software	NI Multisim, LabVIEW
Student's assessment	<ol style="list-style-type: none"> 1. Assignment: 30% (home work, quiz, attention, attendance, etc.) 2. Midterm-1: 20% 3. Midterm-2: 20% 4. Final Exam: 20% 5. Project: 10% (for each group) 6. Final (Comprehensive): Students who score equal or more than 90% of Midterm-1, Midterm-2 and Assignments (without project) are exempted from final exam, mean these students will bag 20% of the final exam automatically.
Students grading	<p>A= $\geq 90\%$ B= $< 90\%$ and $\geq 80\%$ C= $< 80\%$ and $\geq 70\%$ D= $< 70\%$ and $\geq 60\%$ F= $< 60\%$</p>
Tools in class	Scientific calculator, Laptop, Pad, e-book, Cell phones (silent mode, no text/call) can be used as problem solving tools.
Tools in Lab.	TBA