

Course Title	MECH 2342 Electro-Mechanical System (001), CRN: 22660 (Spring-2020): Credit: 3
Instructor	Dr. Arifur R. Khan (arkhan@utep.edu) Office hours: M-T-W-R: 12 to 1 pm (Online)
TA	Ashiqur Rahman (arahman2@miners.utep.edu) TA hours: M-T-W-R: 3 to 4 pm, (Online)
Online Class	MW: 1:30-2:50pm, Online through Bb (March 30 - May 06, 2020)
Course Prerequisite	MATH 1312 (Calculus-II) or MATH 2313 or MATH 2326 (not concurrently)
Course Description	The Electro-Mechanical System requires basic knowledge on electrical circuits and circuit analysis, electronic device, the digital network, electromechanics, etc. appropriate for Electrical, Mechanical, Industrial, Civil, Chemical, Computer, Spacecraft engineering, Aerospace Engineering and Space science education, etc.
Course Objective	This course provides an ability to identify, formulate and solve engineering problems, related to electromechanical system by applying principles of engineering (electrical and mechanical), science and mathematics. This course also takes steps to improve the ability of students to apply engineering design; help students function effectively on a team; develop and conduct appropriate experimentation, analyze and interpret data; acquire and apply new knowledge as needed using appropriate learning strategies.
Course Topics	<ul style="list-style-type: none"> • Introduction (Power, Energy, Current, Voltage, Circuits) • Resistance, Capacitance and Inductance (RLC circuits) with Hands-on learning. • Transients and Sinusoidal Signal Analysis with numerical problems and simulation. • Diode, Bipolar and Field-Effect Transistors with Hands-on activities. • Magnetic Circuits and Transformers with numerical problems and simulations. • DC and AC Machines with numerical problems. • Computer Based Instrumentations (LabVIEW) with sensors.
Reference	<ol style="list-style-type: none"> 1. Electrical Engineering: Principle and Applications by A. R. Hambley. (4th, 5th or 6th Edition, Published by PEARSON, <u>no need to buy</u>) 2. Additional Reference materials (notes, projects, web links, etc.) may be handed out in class, also available in Blackboard.
Software in class	iClicker (Free software) Arduino, NI Multisim, LabVIEW,
Student's assessment	<ol style="list-style-type: none"> 1. Class performance: 35% [Attendance and Class quiz through iClicker] 2. Midterm Exam-1: 20% 3. Online (Bb) Midterm Exam-2: 20% Final exam will replace the worst midterm. 4. Online (Bb) Final Exam (Bb): 20% 5. Project (Online show and report): 25% (4 students with Arduino Kit) 6. Final exam is optional. It will replace the worst midterm. 7. Grace point: 1% if it improves the current grade to the next better level.
Students grading	A= $\geq 90\%$; B= $< 90\%$ and $\geq 80\%$; C= $< 80\%$ and $\geq 70\%$; D= $< 70\%$ and $\geq 60\%$; F= $< 60\%$ (UTEP Standard)
Tools in Class/Lab	<ol style="list-style-type: none"> 1. Scientific calculator, Laptop, Pad, e-book, Cell phones (silent mode, no text/call) can be used as problem solving tools in class, not in the exams. 2. Arduino Kit (link at the next page) Each group must possess one set.

Necessary ITEMS for the Spring 2020 semester

- **Each student is recommended to register in iClicker**

Institution
The University of Texas at El Paso

Course Name
Electro-Mechanical System_1

Course ID
MECH 2342

Instructor
Arifur Khan

Term
CRN 22660

Start Date
January 21, 2020

End Date
May 07, 2020

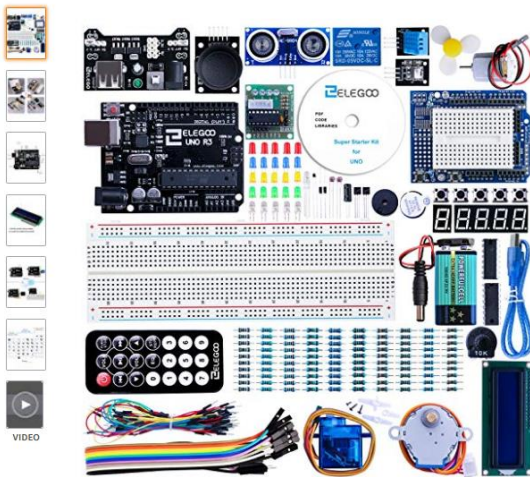
Meeting Times
Mon 1:30 PM, Wed 2:50 PM

Please note, Section-1, CRN No 22660. and Meeting time (MW) in the picture left.

Link: <https://app.reef-education.com/#/courses/add>

- **Each group of 4 (four students) has to buy one set of Arduino Kit**

https://www.amazon.com/ELEGOO-Project-Starter-Tutorial-Arduino/dp/B01D8KOZF4/ref=sr_1_3?ie=UTF8&qid=1547597906&sr=8-3&keywords=arduino+uno (Web access: 1/16/19.)



Roll over image to zoom in

Elegoo EL-KIT-003 UNO Project Super Starter Kit with Tutorial for Arduino

by ELEGOO
817 customer reviews | 145 answered questions
#1 Best Seller in Single Board Computers

Price: **\$35.00 & FREE Shipping.** Details

- Free PDF tutorial(more than 22 lessons) and clear listing in a nice package
- The most economical way to starting Arduino programming for those beginners who are interested
- Lcd1602 module with pin header (not need to be soldered by yourself)
- This is the upgraded starter kits with power supply module, 9V battery with dc
- High quality kite with uno R3, 100 percent compatible with Arduino uno R3

Specifications for this item

Brand Name	ELEGOO
EAN	0746591610623
Item Weight	1.2 pounds
Model Number	EL-KIT-003
Number of Items	1
Part Number	EL-KIT-003
UNSPSC Code	32000000
UPC	746591610623

Date		Class Topic <i>(subject to change)</i>	NOTES
Week 1	1/20	Dr. Martin Luther King, Jr. Holiday	University closed
	1/22	Introduction. Syllabus. High Impact Practices. Teaming, Projects, Arduino	Help students on teaming Buy Arduino Kit
Week 2	1/27	Voltage Current, Resistor, Ohms Law, Numerical problems, Hands On	Home practice for random class quiz
	1/29	Voltage Current, Resistor, Ohms Law, Numerical problems, Hands On	Home practice for random class quiz
Week 3	2/3	Voltage Current, Resistor, Ohms Law, Numerical problems, Hands On	Home practice for random class quiz
	2/5	Voltage Current, Resistor, Ohms Law, Numerical problems, Hands On	Home practice for random class quiz
Week 4	2/10	Voltage Current, Resistor, Ohms Law, Numerical problems, Hands On	Home practice for random class quiz
	2/12	Project-1 Home automation using LDR	Home practice for random class quiz
Week 5	2/17	Capacitor and Capacitance, Numerical Problems with examples	Home practice for random class quiz
	2/19	Inductor and Inductance, Numerical Problems	Home practice for random class quiz
Week 6	2/24	Midterm-1 Exam	Home practice for random class quiz
	2/26	Transients and Sinusoidal Signal Analysis with numerical problems and simulation.	Home practice for random class quiz
Week 7	3/2	Transients and Sinusoidal Signal Analysis with numerical problems and simulation.	Home practice for random class quiz
	3/4	Diode, Numerical Problems, Hands on Graphical Presentation of I-V curve	Home practice for random class quiz
Week 8	3/9	Diode, Numerical Problems, Hands on Graphical Presentation of I-V curve	Home practice for random class quiz
	3/11	Diode, Numerical Problems, Hands on Graphical Presentation of I-V curve	Home practice for random class quiz
Spring Break (March 16-20)			
Week 9	3/23	Extended Spring Break (COVID-19)	
	3/25	Extended Spring Break (COVID-19)	
Week 10 (Online)	3/30	Transistor, Numerical Problems, Graphical Presentation, Hands-on	Home practice for random class quiz
	4/1	Transistor, Numerical Problems, Graphical Presentation, Hands-on	Home practice for random class quiz
Week 11 (Online)	4/6	Project-2 (Home practice and report submission) Transistor-Transistor-Logic (TTL) circuit	Home practice for random class quiz
	4/8	Magnetic Circuits and Transformers with	Home practice for random class quiz

		numerical problems and simulations.	
Week 12 (Online)	4/13	Project-3 (Home practice and report submission) Sensing temp. with Arduino codes	Home practice for random class quiz
	4/15	Midterm-2 Exam (Online, Bb)	Home practice for random class quiz
Week 13 (Online)	4/20	DC and AC Machines with numerical problems.	Home practice for random class quiz
	4/22	DC and AC Machines with numerical problems.	Home practice for random class quiz
Week 14 (Online)	4/27	Project-4 (Home practice and report submission) Distance measure with Arduino codes	Home practice for random class quiz
	4/29	Computer Based Instrumentations (LabVIEW) with sensors.	Home practice for random class quiz
Week 15 (Online)	5/4	Class Review (Optional)	Grade declaration (Blackboard)
	5/6	Class Review (Optional)	
Week 16 (Online)	5/13	Final Exam:4:00-6:45 (Online, Bb)	Comprehensive and Optional

IMPORTANT Spring 2020 DATES

Date	Events
Jan. 21-24	Late Registration
Feb. 21	Graduation application deadline
March 16-20	Spring Break
March 27	Cesar Chavez Holiday – no classes.
April 3	Spring Drop/Withdrawal Deadline
April 10	Spring Study Day, No Class
April 17	Deadline to submit candidates' names for degree conferral
May 7	Last day of class
May 8	Dead day
May 11-15	Spring Final Exams
May 20	Final Grades are due

Addendum to Syllabi – Beginning Fall 2019

ACES & Tutoring Center

Please note there are tutoring services available in the ACES center. Tutoring is free to you; the Department pays them. If tutors are not used, the Department may stop funding them. Check the schedule of the tutors and make use of the services. For more details visit the

ME Advising Blackboard -> cc mech acadav: MECH Academic Advising -> Tutoring & Resources

At the link you can find tutor schedules, location of the ACES center and the list of tutors available. For more information send email to METutors@utep.edu

Academic Honesty

During exams and quizzes, you are not allowed to use any form of Wi-Fi enabled electronic device, including cell phones or other electronic communication devices or methods (wrist watches, earbuds, etc.). No wrist watch or other electronic device may be worn. Calculators and watches may be subject to inspection. You may be asked to temporarily remove glasses to allow for their inspection.

You may not bring backpacks, hats, bulky coats or hoodies into the exam room. Lockers are not available at the exam site so plan and leave your belongings in a secure location. You may NOT sit them in a corner of the exam room.

You must show your work for all problems. You must use the paper provided by the instructor. If no work is shown you may not receive credit. After the exam, the instructor may require you to explain how you solved a problem on the exam. If you refuse to or cannot explain your work you may be subject to disciplinary action.

No electronic version of the book, loose paper print-outs of the book or extra sheets of paper of any kind are allowed unless explicitly mentioned in writing by the instructor. As a part of the zero-tolerance policy, if you have a cellphone or other electronic device capable of communication on your person; or if any proctor sees or hears any electronic device during the exam or if you share your work with someone else, you will be reported to the proper authorities and you may receive a zero on the exam or an F in the class. Other actions including suspension may also be pursued.

No one will be allowed to leave the room during an exam. This includes restroom breaks.

University approved recording devices may be located at various locations in the room and may be out of sight of the students. These recordings will be managed according to the UTEP approved regulations for such media. The instructor may create a record of your activity during the exam and may take photographs of your work during the exam.

If you are suspected of scholastic dishonesty you may or may not be directly confronted about your conduct by the instructor or proctor. You will however, be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) and your exam may not be admissible. Your grade in the class may not be available until OSCCR makes a final ruling, this may adversely impact your ability to enroll in other classes.

If you arrive more than 15 minutes late to an exam, you will not be allowed to take the examination.

There will be no makeup exams administered. If you have a university approved excuse, your instructor will have a process for determining how to handle the missing grade outlined in the syllabus. However, no makeup exams will be given.

If you miss more than one exam, the instructor may choose to administratively drop you from the class. This may adversely impact a visa and financial aid.

No food or drink may be brought into the examination room.

Departmental policy allows for the use of assigned seats. All students must present their UTEP issued ID prior to and during every exam and may be required to sign in. Not having a UTEP issued ID when asked will result in forfeiture of the exam. No other IDs will be accepted. Scholastic dishonesty on homework, lab assignments and all other class assignments will be held to the same standards and requirements of academic honesty as quizzes and exams.

Class Attendance Policy

Attendance is mandatory. Anyone with 5 or more absences will be dropped from the class. A drop for not attending will count toward the State Allowed Six Drop Limit. If you are failing the class at the time of the drop you may also be given a WF designation. Be advised that a drop could adversely impact visa status, financial aid and other programs.

As per UTEP rules, you may be asked to show a UTEP ID at any time during class. Anyone who is present and not registered in the class will be subject to disciplinary action unless the instructor gives prior approval.

Excused Absence for Exams

The UTEP catalog allows Exam Absence to be excused ONLY for University-Recognized Activities and very specific other situations. Medical absence is NOT allowed in the UTEP catalog. For consistency with the catalog, students will NOT be excused from exams due to illness.

Harassment Policy

The University (see Handbook of Operating Procedures 1.2.2.4) has a zero-tolerance policy for harassment. Engagement in any behavior considered harassment will be reported to the proper authorities. In addition to generally understood forms of harassment, the department also treats the following behavior as harassment:

- Repeated emails and/or calls regarding subjects that have already been addressed. Once a decision has been made or a question answered, a student who continues to ask the same question will be given a warning by the recipient of the email/call. If the student continues, the behavior will be reported. Questions that seek understanding of course material are not harassment; but repeated questions about a grade or an administrative decision are.
- Grades are NOT negotiable, ever. If you believe a grading mistake has been made, you must follow the process described in the UTEP catalog. Any request for a grade elevation that is NOT based on a mistake is considered harassment and will be reported immediately.
- Remaining in an office after the occupant requests you leave is considered harassment and potentially threatening. You will be reported immediately without warning and depending on the severity, may be reported to law enforcement.

Similar behavior towards department staff, and student advisors will also be treated as harassment, including persistent phone calls, emails, and badgering. Department staff and student advisors are there to help students, and should be treated with due respect.