The University of Texas at El Paso
Department of Industrial, Manufacturing and Systems Engineering
IE 2377 Electro-Mechanical Systems
Spring 2024

Course Information:

- CRN: 23846
- Location: Chemistry and Computer Science Building (CCSB) 1.0204 (Behind Starbucks)
- Meeting times: Tuesday and Thursday 3:00 - 4:20 PM

Instructor Information:

Dr. Amanda de Oliveira Barros, Assistant Professor
Office: A-239 (Engineering Annex Building)
aoliveira@utep.edu

Office Hours:

- Tuesday 4:30-5:30PM, Thursday 2:00-2:50PM
- Or by appointment, if needed.

Lecture Hours and Location:

- Chemistry and Computer Science Building (CCSB) 1.0204 (Behind Starbucks)
- Tuesday and Thursday 3:00 - 4:20 PM

Course Description:

In this course, the students will learn the basics of electro-mechanical systems, including sensors, actuators, controllers, and practical control strategies.

Course Objectives and Student Outcomes:

Course Objectives	Student Outcomes
Present basic functioning principles of mechatronic components	Be able to recognize and select components for real-life applications
Provide instruction in circuit assembly and basic controller programming	Be able to design mechatronic systems
Provide hands-on activities with sensors, actuators, microcontrollers	Be able to prototype mechatronic systems

Course Prerequisites:

MATH 1312 (Calculus II)

Reference book (not required):

Mechatronics: A Foundation Course. Clarence W. de Silva. CRC Press; 1st edition (June 4, 2010)

Attendance policy:

- Attendance will be officially tracked from the 2nd week of the semester at the beginning of lecture for accountability only. **There is no grade penalty for missing lectures**, however, every student is expected to attend all scheduled class periods and to be on time.
- Students are responsible to check for any changes to the schedule announced in class (e.g., homework assignments, quiz and test dates, schedule changes, modifications of the syllabus, etc.). If a student misses a class, he/she is responsible for the material covered during class.
- It is the student's responsibility to seek the presence sheet if the student joins the lecture late and ensure his/her attendance is marked accordingly.

Course technology and communication:

- **This class will require that you bring your laptop for some in class activities**. If you do not have access to one, you can get a free loan from Technology Support Services. Activity dates will be informed during class and posted on Blackboard in advance. You are advised to inform the instructor regarding issues with your laptop, if a loan is needed it may need to be programmed ahead of time.
- However, the use of electronic devices such as smartphones, tablets, iPads, or smartphones during sessions for activities not related to the lecture is prohibited. If you insist on using these devices outside allowed circumstances, for each occurrence you will lose 2% of the total final course grade.
- If you want to take pictures of the instructor's notes or projected slides, be courteous and ask for permission first. All slides will be available for students on Blackboard.
- Class materials and communications will happen mostly through Blackboard. Students are responsible for checking the course page regularly.

Exams:

- A total of 3 midterm exams, and 1 final exam, will be given during the lecture period on the scheduled dates as shown on the course schedule, with the exception of the final exam which is determined by UTEP.
- If you are unable to take one of the exams due to an excusable issue, your final grade will be calculated based on the remaining three exams. Examples of excusable absences are illness, university official appointments, serious emergencies. Documentation must be presented, otherwise you will be assigned a zero grade on the missed exam.
- In case of campus closure on an assigned exam day, any exam will be rescheduled
- You will not be allowed to bring programming calculators to exams.

Assignments:

- You are encouraged to collaborate with other students while working on assignments so that you may teach or learn from each other. However**, when you submit your assignment, it must be your own work otherwise it will be considered academic dishonesty**.
- Late submissions will be accepted with valid reasons and proper documentation without penalty. Other late submissions will be accepted within 48 hours of the original due time with a 20%-point penalty out of the total grade given to the assignment. No late work will be accepted after solutions have been posted or the assignment has been graded and returned to students.

Course Drop Policy

The instructor will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let the instructor know and then contact the Registrar's Office to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

Email etiquette:

- Email communication with your professors should be considered formal, similar to other business-style email correspondence
- Send course-related emails with "**IE 2377**" at the beginning of the subject line and be specific and brief in the subject. Emails without this prefix may have significantly delayed response if any. Faculty receive many emails; this identification helps me to find emails related to the lecture quickly
- Your email should address your instructor by title and name (Dr. Oliveira, Dr. Barros)
- Use appropriate capitalization and punctuations, spell out words entirely, and sign your complete name. You are encouraged to use the signature feature of Outlook to always include your signature in emails.
- Emails with technical questions may not receive a reply since email may not be the adequate communication for the problem. You are encouraged to come to office hours or schedule a time with the instructor to solve any subject concerns
- Before sending questions via email, make sure your question is not answered on the course syllabus or Blackboard

Academic integrity policy:

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action.

Special accommodations:
The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodations, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

If you are eligible to receive special accommodations inform your instructor as soon as possible so we can work on an adequate plan.

Course grade calculation:
The final course grade will be determined by dividing your score by the total number of possible points and scaling the resulting percentage as shown below:

A = 90.0 – 100% B = 80.0 – 89.9% C = 70.0 – 79.9% D = 60.0 – 69.9% F = Below 60%

The following list gives the weighting of the various items to be used in the determination of grades for the course:

Assignments	40%
Midterm exams	15% x 3 = 45%
Final exam	15%
Total	**100%**

Disclaimer

The information in this syllabus is subjected to change, including the class schedule based on class learning outcomes and unforeseen events. Students will be clearly informed of changes.

Tentative Schedule (subject to change based on class learning outcomes and unforeseen events)

	Tue	**Thu**
Jan 16 18	Syllabus and introductions	Initial assessment
Jan 23 25	Basic elements	Basic elements
Jan 30 Feb 1	Basic elements	Basic elements
Feb 6 8	Circuits	Circuits
Feb 13 15	**Exam 1**	Circuits
Feb 20 22	Circuits	Circuits
Feb 27 29	Circuits	Circuits
Mar 5 7	Circuits	Circuits
Mar 12 14	- (Spring Break)	- (Spring Break)
Mar 19 21	**Exam 2**	Microcontrollers
Mar 26 28	Microcontrollers	Transducers
Apr 2 4	Transducers	Sensors
Apr 9 11	Sensors	Actuators
Apr 16 18	**Exam 3**	Actuators
Apr 23 25	Actuators	Actuators
Apr 30 May 2	Actuators	-
May 6-10	**Final Exam**	