

UNDERGRADUATE COUNCIL

Request for New Course

Originating unit requesting course: Department of Engineering

New course title: Mechatronics

New course number: ENGR 40444

Appropriate computer abbreviation if title is more than 30 spaces: _____

Corequisites for new course:

ENGR 30444 Electronics I

Effective date for course (semester and year): Fall 2022

Term typically offered: Fall semester every other year

Instructional methodology (Click in box to the left of the name to select a course type.)
(See departmental chairperson or deans for definition of type.):

- | | | | |
|--|---|---|---------------------------------------|
| <input type="checkbox"/> activity | <input type="checkbox"/> clinical | <input type="checkbox"/> directed study | <input type="checkbox"/> internship |
| <input checked="" type="checkbox"/> laboratory | <input checked="" type="checkbox"/> lecture | <input type="checkbox"/> lecture w/integrated lab | |
| <input type="checkbox"/> performance | <input type="checkbox"/> research | <input type="checkbox"/> seminar | <input type="checkbox"/> study abroad |

Description of new course (as it will appear in catalog copy):

Prerequisites: ENGR30444 or concurrent.

Fundamentals of microcontroller-based mechatronics systems, as well as control and characterization of a variety of transducers. An Arduino microcontroller platform is used. Design, prototype, and characterization of various mechatronic systems conducted in lab.

1. Submit a representative course syllabus that includes the following:

- a. A concise course description including the course purpose (e.g. fulfill part of university, college, or department mission, discipline requirement, program enrichment, etc.) and course instructional methodology (e.g. lecture, laboratory, lecture and laboratory, clinical, internship, etc.)
- b. the goals of the course;
- c. a clear statement of course expectations - essentially, what students shall be expected to do in order to satisfactorily complete the course at different performance levels (generally speaking, what does it take to get an A, B, C, etc.);
- d. a statement of the faculty member's policies on attendance, make-up work, missed exams, etc;
- e. information concerning major projects or papers and when these assignments must be completed by the students;
- f. information about the number and dates of the exams;
- g. statements reflecting TCU policy regarding accommodations under Americans with Disabilities Act (ADA) ([this disabilities statement](#) MUST be included *verbatim*) and university policy regarding academic misconduct ([this statement](#), while not required, may be used); and
- h. a statement indicating how the instructor can be reached and how office hour requirements will be met.

2. Faculty Resources: How will the unit provide faculty support for this course?

Describe how this course will impact other current departmental listings.

Current faculty will teach this new course. It will be one of the engineering electives available to both electrical and mechanical emphasis students. It has been taught before as ENGR40970 Special Topics course.

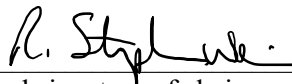
3. Educational Resources: Will this course require additional resources not currently available (e.g., space, equipment, library)? **Yes**

The resources that will be required include an Arduino with a sensor/actuator kit per group. Additional hardware up to ~\$50 per group may include additional materials or transducers, depending on their project type.

In addition, we will be utilizing the 3D printing services in the lab for enclosures and PCB orders for each group (This will be limited to ~\$75 per group).

4. If this course affects other units of the University, include a statement signed by chairperson of the affected unit(s).

No.

5. If cross-listed, provide evidence of approval of all curriculum committees appropriate to both the originating and cross-listed units.

Approval signature of chairperson of originating unit