

MECHATRONICS TECHNOLOGY, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

Mechatronics is an interdisciplinary technical discipline that combines mechanical, electrical, electronics, control and computer engineering technology. The field deals with the design, development, control, and application of advanced electro-mechanical systems. Such systems will include sensors, actuators, microprocessors, controllers, software, computer, and mechanical hardware components. The purpose of the mechatronics technology minor is to provide undergraduate students an opportunity to take relevant courses that will sequentially build on their knowledge and understanding of mechatronic systems and to provide recognition to those who do so.

What is Mechatronics Technology?

Mechatronics Technology is a multidisciplinary field of engineering and technology that includes a combination of mechanical, electronics, computer, systems, and controls technology, and focuses on real-world application of these areas. The field deals with the design, development, control, and application of advanced electro-mechanical systems. Such systems will include sensors, actuators, microprocessors, controllers, software, computer, and mechanical hardware components. The applications of mechatronics technology include medical, defense, manufacturing, robotics, automotive, and distributed systems and smart consumer products. Mechatronics engineers and technologists develop new solutions to industrial problems using mechanical and electronic systems and computer technology in addition to designing and building completely new products by integrating various technologies. They may also develop and test factory production lines by integrating automation to improve existing process.

You Might Like This Program If...

- You like hands-on and creative problem-solving.
- You like understanding how robotics or automation work.
- You are interested in working with technology as it relates to manufacturing and systems engineering. You work well within collaborative, multidisciplinary teams.
- You are interested in a career as a hands-on technologist or test engineer.
- You are interested in the synergy of electrical, computer and mechanical systems.

Program Requirements

| Requirement | Credits |
|----------------------------|---------|
| Requirements for the Minor | 18-23 |

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>).

In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

| Code | Title | Credits |
|---|---|---------|
| Additional Courses | | |
| <i>Additional Courses: Require a grade of C or better</i> | | |
| EET 311 | Alternating Current Circuits | 3-4 |
| or EET 315 | Linear and Discrete System Analysis | |
| Select one of the following: | | 3 |
| EMCH 211 | Statics | |
| ET 300 | Mechanics I: Statics | |
| MET 111 | Mechanics for Technology: Statics | |
| Supporting Courses and Related Areas | | |
| <i>Supporting Courses and Related Areas: Require a grade of C or better</i> | | |
| Select 6-8 credits of the following: ¹ | | 6-8 |
| <i>Group A</i> | | |
| EE 310 | Electronic Circuit Design I | |
| or EET 212W | Op Amp and Integrated Circuit Electronics | |
| Select one of the following sequences: | | |
| CMPEN 271 & CMPEN 275 | Introduction to Digital Systems and Digital Design Laboratory | |
| CMPET 117 & CMPET 120 | Digital Electronics and Digital Electronics Laboratory | |
| <i>Group B</i> | | |
| Select one of the following: | | |
| EET 341 | Measurements and Instrumentation | |
| EMET 330 | Measurement Theory and Instrumentation | |
| ME 345 | Instrumentation, Measurements, and Statistics | |
| ME 345W | Instrumentation, Measurements, and Statistics | |
| MET 341 | Mechanical Measurements and Instrumentation | |
| Select one of the following: | | |
| EMCH 212 | Dynamics | |
| ET 321 | Dynamics | |
| MET 206 | Dynamics | |
| Select one course each from the following categories: | | 6-8 |
| <i>Category I</i> | | |
| CMPEH 472 | Microprocessors | |
| EE 485 | Energy Systems and Conversion | |
| <i>Category II</i> | | |
| EET 433 | Control System Analysis and Design | |
| EET 440 | Applied Feedback Controls | |
| EMET 410 | Automated Control Systems | |
| MET 454 | Automatic Controls | |
| MET 455 | Mechatronics | |

¹ Students graduating with an MET major should take 8 credits from Group A; students graduating with an EET major should take 6-7 credits from Group B; all other students should take one course from each group, totaling 7-8 credits.

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of

both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Harrisburg

Amit Banerjee, Ph.D.

Program Chair

Olmsted Building, W239

Middletown, PA 17057

717-948-6661

aub25@psu.edu

Contact

Harrisburg

SCHOOL OF SCIENCE, ENGINEERING, AND TECHNOLOGY

Olmsted Building, W239

Middletown, PA 17057

717-948-6116

kmb51@psu.edu

<https://harrisburg.psu.edu/science-engineering-technology/mechatronics-technology-minor> (<https://harrisburg.psu.edu/science-engineering-technology/mechatronics-technology-minor/>)