

- Course Number and Title: M E 487. Mechatronics
- Catalog Description: Introduction to the analysis and design of computer-controlled electromechanical systems, including data acquisition and conversion, force and motion sensors, actuators, mechanisms, feedback control, and robotic devices. Students required to work in teams to construct and test simple robotic systems. Crosslisted with M E 587.
- Credit Hours: 3 Credits (2+3P)
- Prerequisite(s) / Corequisite(s): Prerequisite(s): M E 210 and M E 345
Corequisite(s): None
- Required: Elective for BSME or BSAE Degree
- Course Availability: Spring Semester
- Instructor (Usual): Dr. Liang Sun (See <https://mae.nmsu.edu/people/faculty.html>)
- Textbook: *Introduction to Mechatronics and Measurement Systems*. David G. Alciatore, McGraw Hill. 5th Edition, 2018. ISBN-13: 978-1259892349. ISBN-10: 1259892344
- Course Learning Objectives: After completing this course, a student will get an understanding of:
 - 1) Define a mechatronic system and its primary elements.
 - 2) Exercise a computational model of the mechatronic system and evaluate the system response.
 - 3) Design, formulate and implement an appropriate closed-loop controller.
 - 4) Design and demonstrate a functional physical device that solve a practical problem while meets system requirements.
 - 5) Know contemporary issues.
- Topics Covered:
 - Review of electric circuits and components
 - Introduction to analog signal processing and operational amplifiers
 - Introduction to digital circuits and microcontroller programming
 - Review of data acquisition
 - Review of sensors and measurement methods
 - Introduction to actuators
 - Introduction to mechatronic control architectures
 - Hardware assembling and testing