Mechatronics in Mechanical Engineering

What is Mechatronics? Mechatronics is the term originally coined to describe the integration of mechanical, electrical, and computer technologies into the design of complex products. Although products have long included all three components, traditional design methods viewed them as separate, independently realized aspects of the design. Mechatronics emphasizes global optimization by integrating these three components of the design process.

Examples of Mechatronic systems include:

(a) Remotely controlled vehicles such as the Mars Rover
(b) Automation systems such as:
  (i) vehicle stability control;
  (ii) automated landing of aircraft in adverse weather; and
  (iii) precision control of machine tools
(c) Precision control of robots, for example, in robotic surgery

Senior Design Projects – These projects emphasize design of mechanical systems using embedded real-time computing, and will include the implementation of a prototype in the Embedded Computing Laboratory. These include projects in robotics, automation and controls.

Mechatronics Senior Capstone Design Project

To be eligible for a Mechatronics Capstone Design Project in the spring quarter of the senior year, you should take the following four pre-requisites courses: ME395, ME471, ME473, ME498M and ME477.

The Mechatronics Curriculum

Since the Autumn of 1996, the Department of Mechanical Engineering has offered a guided curriculum in mechatronics (see table of courses below).

Mechatronics Curriculum Senior Year

	Autumn Quarter	Winter Quarter	Spring Quarter
Mechatronics Core Courses (Take all)	**ME 471** Automatic Control		**ME 495** Mechatronics Capstone Design
	ME 473 Instrumentation and Sensors	**ME 477** Embedded Computing	
	ME 395 Introduction to Mechanical Design	**ME 498 M** Special Topics: Mechatronics Design, one credit	
Elective Courses for Mechatronics (Take two)	**ME 469** Advanced Dynamics	**PHYS 334** Electronics Design Lab I	**PHYS 335** Electronics Design Lab II
	ME 480 Computer-Aided Technology	**ME 470** Mechanical Vibrations	**ME 478** Finite Element Analysis
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NOTE: ME 395 in earlier quarters is also acceptable.