

The Department of Engineering

Mechatronics Minor

Minor Director: Garrett M. Clayton, Ph.D.
Office Location: 250C Drosdick Hall
Telephone: (610) 519-4798
Email: garrett.clayton@villanova.edu

About:

Mechatronics is a multidisciplinary branch of engineering that focuses on the engineering of both electrical and mechanical systems, and also includes a combination of robotics, electronics, computer, telecommunications, systems, control, and product engineering.

This minor is open to Engineering students only.

Requirements:

The Mechatronics minor requires the successful completion of nine courses (22 credits). Six required courses and one associated laboratory, one Mechanical Engineering elective, and one Electrical and Computer Engineering elective.

Required Courses:

Course	Title	Credits
ME 2100	Statics	3
ME 2101	Dynamic Systems I	3
	ME 3103 or ECE 2290	3-4
ECE 2030	Electric Circuits Fundamentals	3
ECE 2031	Elect Circuit Fundamentals Lab	1
	Either CSC 1051 or ECE 1260/1261	4
	Either ECE 2430/ECE 2431 or ECE 2042/ECE 2043	4

Mechanical Engineering Elective:

Electives are subject to change. Electives may be added to this list at the discretion of the College of Engineering.

Select ones course from the list below:

Course	Title	Credits
ME 5411	Mechatronics	3
ME 5421	Introduction to Robotics	3
ME 5441	Advanced System Modeling	3
ME 7205	Advanced Dynamics	3
ME 8204	Robotics:Analysis & Control	3
EGR 8301	Control Systems Engineering	3
EGR 8302	Digital Control	3
EGR 8304	Nonlinear Control	3
EGR 8305	System Identification	3
EGR 8308	Feedforward Control	3
EGR 8311	Machine Learning for Engineers	3

[ME 5001](#) with approval from the Minor Director

Electrical and Computer Engineering Elective:

Electives are subject to change. Electives may be added to this list at the discretion of the College of Engineering.

Select ones course from the list below:

Course	Title	Credits
ECE 5390	Control System Design	4
ECE 5400	Applied Machine Learning	3
ECE 5450	Microcontrollers & Applic	3
ECE 5451	Adv Microcontroller App Design	3
ECE 5480	Android Mobile Dev Programming	3
ECE 5800	Electric Machines	3
ECE 7580	Intro to Power Electronics	3
ECE 7830	Intro. to Electric Drives	3
ECE 8425	Microproc & Microcomp	3
EGR 8301	Control Systems Engineering	3
EGR 8302	Digital Control	3
EGR 8304	Nonlinear Control	3
EGR 8305	System Identification	3
EGR 8308	Feedforward Control	3

[ECE 5991](#) with approval of Minor Director