

Robotics

Master of Engineering: 30 Credits / 10 Courses

Students pursuing this option must successfully complete 4 core courses, at least 2 ENPM Robotics specific electives and up to 4 technical electives from the approved list of courses. Students should consult with their advisor prior to registering and have pre-approval for all technical electives. There is no research or thesis required for this degree.

Robotics Core Courses (take four): <i>recommended for your first year of study</i>	
	ENPM661 Planning for Autonomous Robots (every spring)
	ENPM662 Introduction to Robot Modeling* (every fall)
	ENPM667 Control of Robotic Systems* (every fall)
	ENPM673 Perception for Autonomous Robots (every spring)

Robotics Programming Elective (take at least one): <i>recommended for your first year of study</i>	
	ENPM809Y Introductory Robot Programming (every fall)
	ENPM809E Python Applications for Robotics (every spring)
	ENPM808X Software Development for Robotics [ENPM809Y] (every fall)

*ENPM809Y is a pre-requisite for ENPM808X, and cannot be taken concurrently or subsequently

Note: Any taken over the 1 required count as other Robotics or technical electives

Robotics Electives (take at least two): <i>recommended for your first year of study</i>			
	ENPM690 Robot Learning (every spring)		ENPM692 Manufacturing and Automation (every spring)
	ENPM640 Rehabilitation Robotics (every fall)		ENPM809B Building a Manufacturing Robot Software System (every spring)
	ENPM645 Human Robot Interaction (every fall)		ENPM809T: Autonomous Robots

Note: Any taken over the 2 required count as technical electives

Pre-approved Technical Electives (choose up to three): <i>recommended for consideration in your second year of study</i>

Technical Elective Notes

1. Additional ENPM Robotics Electives can also be counted as Technical Electives
2. For non-ENPM courses, permission must be obtained from the professor before enrolling to confirm the student has the appropriate background to be successful in the course
3. OAAE cannot guarantee a spot in a non-ENPM course. Students should have back-up courses prepared if they are interested in non-ENPM courses

Vision and Perception

CMSC733 Computer Processing of Pictorial Information
 CMSC734 Information Visualization
 ENEE631 Digital Image and Video Processing
 ENEE633 Statistical Pattern Recognition
 ENEE731 Image Understanding
 *CMSC426 covers content very similar to ENPM673 and will not be approved towards the M.Eng. degree

Performance Analysis and Design Methods

ENME600 Engineering Design Methods
 ENME695 Failure Mechanisms and Reliability
 ENAE697 Space Human Factors and Life Support
 ENSE621 Systems Engineering Concepts and Processes: A Model-Based Approach

Optimization and Algorithms

CMSC 651 Analysis of Algorithms
 CMSC712 Distributed Algorithms and Verification
 CMSC722 Artificial Intelligence Planning
 ENAE681 / ENME610 Engineering Optimization
 ENME607 Engineering Decision Making
 ENEE662 Convex Optimization

Modeling, Systems and Control

ENME605 Advanced Systems Control
 ENME664 Dynamics
 ENME808T Network Control Systems
 ENEE660 System Theory
 ENEE661 Nonlinear Control Systems
 ENEE664 Optimal Control
 ENEE765 Adaptive Control
 ENAE646 Advanced Dynamics
 ENAE743 Applied Nonlinear Control

Specialty

ENME489L Bio-Inspired Robotics
 ENME746 Medical Robotics
 ENSE698E Sensor Systems
 ENAE 692 Introduction to Space Robotics
 ENAE788X Planetary Surface Robots
 ENCE622 Construction Automation & Robotics
 ENPM808 (3 credits) Advanced Topics in Engineering

*NOTE: Any courses not listed above must be approved by the Senior Academic Advisor **PRIOR** to registration.*

KEY	
Online Option *	(offering information)
[Prerequisite course]	