MS IN COMPUTING: ROBOTICS

A student may pursue an MS with a thesis option, a project option, or a course-only option. The minimum number of credits is 30. Three courses are required, plus an additional three courses must also be taken from a restricted selection as described in Robotics Track Courses.

Two additional elective courses, directly related to the student's degree, at the 6000-level or higher (not including independent study, seminars, or thesis research hours) from any department are required. Depending on whether a student is pursuing a thesis MS, a project MS, a course-only MS or additional 6000-level or higher courses can be chosen, this time including independent study, seminars, and research credit, in order to reach a 30-credit minimum.

TRACK FACULTY
Jake Abbott (ME), Tom Henderson, Tucker Hermans, **John Hollerbach (Track Director),** Steve Mascaro (ME), Vivek Srikumar, Ross Whitaker

COURSE REQUIREMENTS	
The following three courses are required:	
CS 6310 / ME EN 6220	Introduction to Robotics
CS 6370 / ME EN 6225	Motion Planning
CS 6330 / ME EN 6230	Introduction to Robot Control (pre-requisite for CS 7310 & CS 7320)
CS 7939 / ME EN 7960-001*	Robotics Seminar (Fall semester)
One course from each of these three areas are required:	
PERCEPTION	
CS 6320	3D Computer Vision
CS 6640	Image Processing
COGNITION	
CS 6300	Artificial Intelligence
CS 6350	Machine Learning
CS 6380	Multi-agent systems
ACTION	
ME EN 6240	Advanced Mechatronics
CS 6360	Virtual Reality
CS 7310 / ME EN 7230	Robot Mobility and Manipulation
CS 7320 / ME EN 7220	System Identification for Robotics
ME EN 7960-07	Haptics
Two additional 6000-level courses are required (excluding independent study, seminars, or thesis research credit).	

* The fall session deals with research; current student and faculty presentations, readings; and enrollee presentations. The spring session deals with professional development.

PHD IN COMPUTING: **ROBOTICS**

A minimum of 50 credits is required, of which at least 27 credits must be graduate course work, and at least 14 credits must be dissertation research. Of the graduate course work, three are required courses, plus an additional three courses must be taken from the restricted electives as described in Robotics Track Courses.

Two additional elective courses at the 6000-level or above (not including independent study, seminars, or thesis) from any department are required. Remaining credits to fill the 50-credit minimum may be chosen from other 6000-level or higher courses or from seminars or dissertation research, but not independent study.

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CS 6350	Machine Learning
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ACTION	
ME EN 6240	Advanced Mechatronics for Mechanical Engineers
CS 6360	Virtual Reality
CS 7310 / ME EN 7230	Robot Mobility and Manipulation
CS 7320 / ME EN 7220	System Identification
ME EN 7960-07	Haptics

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