

## ROBOTICS SYSTEMS ENGINEERING TECHNOLOGY

### Program Overview

The robotics program at MCC is designed to train students in several areas related to the field of robotics. These fields include theoretical discussions of robotics, robot programming, robotics system simulation and design. Students will develop a comprehensive understanding of robotic systems. Students will develop key skills in writing, the development process, and design to optimize today's technologies. Students will apply their skills through hands-on projects in laboratory settings and group work

Some of the key areas addressed by the curriculum include:

- path planning and navigation for autonomous robots
- applied machine learning for adaptation of robotics systems

- sensor networks
- multi-robot systems
- industrial robot programming
- robotic software programming for mobile robots  
robotic system simulation

For more information, visit: [www.mchenry.edu/robotics](http://www.mchenry.edu/robotics)

**The primary purpose of an Associate in Applied Science degree is to prepare students for employment. The AAS degree is not designed specifically for transfer; however, there are opportunities to apply some coursework or the whole degree to a bachelor's degree program. For more information, see an academic advisor and the department chair.**

### Requirements for the Associate in Applied Science (AAS) in Robotics Systems Engineering Technology

Curriculum: OCC 1150	Credit Hours		
<b>General Education Core</b>			
<b>Communications</b> 2 courses	6	(3) ENG 105 Technical Communications (3) ENG 151 Composition I	(3) ENG 152 Composition II (3) SPE 151 Intro to Speech
<b>Humanities &amp; Fine Arts, Social &amp; Behavioral Sciences</b> Select 1 course from Humanities & Fine Arts and 1 course from Social & Behavioral Sciences <i>PHI 251 and SOC 151 recommended</i>	6	<b>Humanities &amp; Fine Arts</b> <i>Select 1 course from the following prefixes or course numbers:</i> ART (does not include: 166, 190, 290, 299) (3) AET 141 Interior Design I (3) AET 142 History of Interiors (3) AET 241 Interior Design II (3) DGM 168 Computer Art I ENG (does not include: 088-099, 105, 151, 152) FRE GER (3) GRA 167 Graphic Design I (3) JRN 152 Intro to Mass Communication (3) JRN 155 Newswriting (3) JRN 165 Intro to Broadcasting (3) JRN 170 Feature Writing (3) JRN 180 Intro to Film MUS (does not include: 100, 104, 111, 160, 161, 162, 201-219) PHI	<b>Humanities &amp; Fine Arts cont'd.</b> (4) SPA 151 Elementary Spanish I (4) SPA 252 Intermediate Spanish II (4) SPA 152 Elementary Spanish II (4) SPA 251 Intermediate Spanish I (3) SPE 155 Interpersonal Communication (3) SPE 161 Small Group Communication (3) SPE 251 Intercultural Communication (3) SPE 265 Fundamentals of Oral Interpretation THE  <b>Social &amp; Behavioral Sciences</b> <i>Select 1 course from the following prefixes or course numbers:</i> ANT ECO (3) GEG 202 Geog. of the Developed World (3) GEG 203 Geog. of the Developing World (3) GEG 204 Economic Geography HIS PLT PSY SOC
<b>Mathematics, Physical or Life Sciences, Technology</b> Select 1 course from Mathematics	3	<b>Mathematics</b> (3) MAT 107 Mathematics for Electronics II	

<b>Program Core</b>	26-27	(3) AET 151 Computer Aided Design Graphics I <b>or</b> (4) EGR 151 Engineering Graphics (3) CDM 110 Computer Literacy for Windows (3) IMT 102 Manufacturing Processes (3) IMT 103 Materials of Industry (3) IMT 104 Blueprint Reading for Manufacturing	(2) NET 140 Linux Operating Systems (3) ROB 110 Introduction to Robotics (3) ROB 150 PLC Automation Applications I (3) ROB 200 Cyber-Physical Systems
<b>Program Electives</b>	19	(3) AET 152 Computer Aided Design Graphics II (3) AET 153 Computer Aided Design Graphics III (3) AET 154 Computer Aided Design Graphics IV (3) AET 158 Geometric Tolerancing (3) AET 299 Independent Study in Design Technology (3) AOM 131 Windows Spreadsheet Applications I (3) AOM 132 Database Systems I (3) AOM 232 Database Systems II (4) CSC 121 Computer Science I (4) CSC 122 Computer Science II (3) DBM 110 SQL/Database Concepts (3) IMT 105 Introduction to Manual Machining (3) IMT 109 Mechanics of Materials (3) IMT/MGT 110 Supervisory Responsibility (3) IMT 112 Training the Trainer (3) IMT 116 Industrial Safety Management (3) IMT 117 Supply Chain Management I	(3) IMT 120 Metrology for Quality (3) IMT 121 Quality Practices & Management (3) IMT 135 Maintenance Management (3) IMT 155 CNC Programming II (2) IMT 200 Computer Integrated Manufacturing I (2) IMT 205 Computer Integrate Manufacturing II (3) IMT 210 Continuous Improvement Practices (3) IMT 215 Supply Chain Management II (1-6) IMT 299 Independent Study in Manufacturing (3) MAT 159 Mathematics for Electronics III (3) NET 110 Network+ Certification Prep (2) NET 120 Computer Hardware Basics (3) NET 145 Linux+ Certification Prep (2) NET 150 Windows Operating Systems (2) NET 180 Computer Security Awareness (4) NET 185 Ethical Hacking (3) ROB 115 Introduction to Electronics (3) ROB 116 Electricity and Automatic Controls (3) ROB 145 Hydraulics, Pneumatics and Controls (3) ROB 151 PLC Automation Applications II (3) ROB 211 Distributed Robotic Systems (3) ROB 220 Artificial Intelligence (3) WEB 105 Web Fundamentals
<b>Total Degree Credits</b>	60-61		

**Other AAS Graduation Requirements:**

- 2.0 cumulative GPA at MCC upon completion of program
- 15 semester hours of program-specific coursework taken at MCC
- Completion of graduation application
- Completion of end-of-program assessment as directed by this department

## Requirements for the Robotics Systems Programmer Certificate

Curriculum: OCC 1160	Credit Hours		
<b>Program Core</b>	17	(3) CDM 110 Computer Literacy for Windows (3) MAT 107 Mathematics for Electronics II (2) NET 140 Linux Operating Systems	(3) PRG 105 Programming Logic (3) ROB 110 Intro to Robotics (3) ROB 200 Cyber-Physical Systems
<b>Program Electives</b>	12	Choose courses from the catalog with the following prefixes: CDM, CSC, DBM, MAT, NET, PRG, or ROB.	
<b>Total Certificate Credits</b>	29		

For more information, visit: [www.mchenry.edu/roboticsprogrammer](http://www.mchenry.edu/roboticsprogrammer)

### **Other Certificate Graduation Requirements:**

- 2.0 minimum cumulative GPA at MCC upon completion of program
- For certificates of less than 12 credit hours, all required credits must be completed through MCC coursework. For all other certificates, one-half of the minimum credit hours required must be completed through MCC coursework.

- Completion of Intent to Graduate form
- Completion of end-of-program assessment as directed by this department.

**For more information, contact the department chair: (815) 455-8732.**