



Robotics

Student Learning Outcomes

- 1 Communication- The student will demonstrate the ability to communicate effectively using written and/or oral communication.
- 2 Information Literacy- The student will recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.
- 3 Problem Solving- The student will demonstrate the ability to analyze information and solve problems.
- 4 Workplace Skills - Demonstrates a mastery of workplace skills/soft skills, exhibits initiative, adapts to varied situations

Program Outcomes

- 1 At the end of this program students will be able to demonstrate through laboratory and classroom work the ability to apply proper techniques and practices in the assembly, repair, installation and maintenance of robotic equipment
- 2 At the end of this program students will be able to demonstrate through laboratory and classroom work the ability program and operate robotic equipment
- 3 At the end of this program students will be able to apply problem solving and critical thinking skills to troubleshoot robotic equipment
- 4 At the end of this program students will be able to demonstrate through laboratory and classroom work the ability to apply proper techniques and practices in identification, assembly, and interfacing of IoT components.
- 5 At the end of this program students will be able to apply problem solving and critical thinking skills to survey robotic equipment
- 6 Demonstrate basic robotic programming skills.
- 7 Demonstrate, through laboratory and classroom work, the ability to apply proper techniques and practices in virtual robot simulation and directly operate robotic equipment
- 8 Demonstrate basic and advanced programming skills for basic robotic equipment
- 9 Demonstrate problem solving and critical thinking skills to troubleshoot robotic equipment
- 10 Demonstrate the ability to program and manage Programmable Logic Controls for robotic manufacturing processes and advanced work cell integration

- 11 Demonstrate maintenance and support techniques for robotics equipment
- 12 Demonstrate electronic sensor selection, ability to apply proper techniques to interface and integrate IoT (Internet of Things) components and software
- 13 Demonstrate sensor data collection of IoT and sensor data delivery to BIG Data Analytics or BI (Business Intelligence Systems)
- 14 Demonstrate advanced robot programming with Machine Learning

Associate of Applied Sciences, Robotics

Total Credits 64

Fall

Course #	Course Title	Credits	Function
ROB 100	Introduction to Robotics	3	Technical Studies
ROB 118	Basic Circuits	3	Technical Studies
ROB 128	Basic PLC	3	Technical Studies
MTH 112	College Algebra*	3	General Studies
	Communication Elective*	3	General Studies

Spring

Course #	Course Title	Credits	Function
ROB 115	Introduction to Programming Robots in ROS	4	Technical Studies
ROB 124	Robotic Navigation	2	Technical Studies
ROB 138	Advanced PLC	3	Technical Studies
	Humanities Elective*	3	General Studies

Summer

Course #	Course Title	Credits	Function
ROB 120	IoT Fundamentals: Introduction to the Internet of Things	3	Technical Studies
ROB 130	IoT Fundamentals: Connected Things	3	Technical Studies

Fall

Course #	Course Title	Credits	Function
ROB 103	Applied Robotics Lab I	4	Technical Studies
ROB 104	Robotics Simulation	2	Technical Studies
ROB 106	Robotics Controller Maintenance	1	Technical Studies
ROB 140	IoT Fundamentals: Big Data Analytics	3	Technical Studies
ROB 145	Applied Robotics Lab II	2	Technical Studies
ENG 101	Composition I*	3	General Studies

Spring

Course #	Course Title	Credits	Function
ROB 134	Robotic Perception and Manipulation	4	Technical Studies
ROB	Experiential Learning Elective**	3	Elective
ROB	Robotics Electives***	6	Elective
	Social Science Elective*	3	General Studies

**Experiential Learning Electives

Course #	Course Title	Credits	Function
ROB 170	Robotics Internship		Elective
ROB 172	Robotics Capstone		Elective

***Robotics Electives

Course #	Course Title	Credits	Function
ROB 144	Machine Learning for Robotics		Elective
ROB 148	PLC System Design and Simulation		Elective
ROB 150	IoT Security		Elective
ROB 155	Advanced Industrial Workcell Programming		Elective

* Kansas Systemwide General Education

Technical Certificate, Robotics

Total Credits 40

Fall

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ROB 100	Introduction to Robotics	3	Technical Studies
ROB 118	Basic Circuits	3	Technical Studies
ROB 128	Basic PLC	3	Technical Studies

Spring

Course #	Course Title	Credits	Function
ROB 115	Introduction to Programming Robots in ROS	4	Technical Studies
ROB 124	Robotic Navigation	2	Technical Studies
ROB 138	Advanced PLC	3	Technical Studies

Summer

Course #	Course Title	Credits	Function
ROB 120	IoT Fundamentals: Introduction to the Internet of Things	3	Technical Studies

ROB 130	IoT Fundamentals: Connected Things	3	Technical Studies
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Fall

Course #	Course Title	Credits	Function
ROB 103	Applied Robotics Lab I	4	Technical Studies
ROB 104	Robotics Simulation	2	Technical Studies
ROB 106	Robotics Controller Maintenance	1	Technical Studies
ROB 140	IoT Fundamentals: Big Data Analytics	3	Technical Studies
ROB 145	Applied Robotics Lab II	2	Technical Studies

Spring

Course #	Course Title	Credits	Function
ROB 134	Robotic Perception and Manipulation	4	Technical Studies