

# ROBOTICS AND AUTOMATION (RAM)

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## **RAM 155 - Microcontroller Programming**

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course introduces students to microcontroller systems and programming using Python language. Students construct a wheeled robot and learn to program the device. Standard coding structures including statements, loops, and functions are used to control the unit. Debugging and troubleshooting skills are developed as robot capabilities are implemented. The robot is used in subsequent Engineering Technology courses. Group 2 course. Critical Thinking - Direct. Recommended Prerequisite(s): Basic keyboarding and computer skills

## **RAM 205 - Microcontroller Systems**

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course is a continuation of RAM 155 - Microcontroller Programming. Students implement additional abilities for their robot created during RAM 155, utilizing custom sensors, actuators, and interfaces. Activities require the application and extension of both hardware and software skills developed in prerequisite Engineering Technology courses. Students determine requirements, build hardware, code software, troubleshoot, evaluate, and iterate as they create solutions. As part of this course, students will earn the PCEP - Certified Entry-Level Python Programmer certificate. Group 2 course. Critical Thinking - Direct. Required Prerequisite(s): EET 103, RAM 155