

Department:

Precision Agriculture

Course Description:

This course is designed to teach a person with basic electrical knowledge how sophisticated electronic control systems are applied to Precision Agriculture applications. The course will cover simple open-loop control to the more complex closed-loop control systems. The class will introduce a variety of sensors and actuators, that are commonly used in conjunction with the controllers, to measure and control various agricultural operations. In addition to control technology, wiring symbols and wiring diagrams will be taught for diagnostics applications.

Course Competencies:

1. Read and understand wiring diagrams
2. Understand control concepts commonly used in agricultural electronic controllers
3. Understand how sensors and actuators operate and their application to control systems
4. Incorporate control systems into management of technology to enhance worker safety and productivity

Course Content:

- A. Instruments, Symbols, and Line Diagrams
- B. Wiring Diagrams
- C. Solenoids
- D. Control Valves
- E. Flow Meters
- F. Pressure Sensors
- G. Speed Sensors
- H. Temperature Sensors
- I. Control Devices
- J. Relays
- K. Preventative Maintenance/Troubleshooting

Learning Assessments:

- A. Discussion Questions
- B. Graded Assignments
- C. Comprehensive Assignments
- D. Research Paper/Projects/Presentation/Portfolio
- E. Quizzes and Exams

Instructional Materials:

Printed materials and videos will be provided in this course. No textbook required.

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the “Disabilities Self-Identification Form” at this link: <https://highlandcc.edu/pages/disability-services>.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.