Western Technical College

10006180 Emerging Ag Technologies

Course Outcome Summary

Course Information

Description	Students will gain knowledge and experience in the four key areas of accelerating change in agricultural technology: Sensors, Food, Automation and Engineering. Sensors included air & soil sensors, equipment telematics, livestock biometrics, crop sensors, and infrastructural health sensors. Food technology includes genetically designed food and In vitro meat. Automation technology includes variable rate swath control, selective breeding, agricultural robots, precision agriculture. Closed ecological systems, synthetic biology, and vertical farming are included in engineering technology.
Career Cluster	Agriculture, Food and Natural Resources
Instructional Level	Associate Degree Courses
Total Credits	3
Total Hours	72

Textbooks

No textbook required.

Course Competencies

1. Examine technology related to sensors used in the industry.

Assessment Strategies

1.1. Case Study

Criteria

You will know you are successful when

1.1. Able to interpret data from air & soil sensors
1.2. Able to trouble shoot equipment telematics
1.3. Able to analyze livestock biometric information
1.4. Able to interpret data from crop sensors

Learning Objectives

1.a. Identify types of sensors used in agriculture such as pH, temperature, and location.

1.b. Prepare a analysis of cost and benefits of utilizing various types of sensors.

2. Examine technology solutions related to food production.

Assessment Strategies

2.1. Scenario Response

Criteria

2.1. you can critically analyze both the opportunities and the pitfalls that emerge when working with technology in food production.
2.2. you can manage specific agricultural software platforms and tools used in food production.
2.3. you develops critical self-confidence for working with mobile technology to address agricultural challenges in food production

Learning Objectives

2.a. Explain what a genetically modified organism is and benefits and risk associated with the use of GMOs.
2.b. Identify areas of agriculture in which precision agriculture techniques are utilized and explain the data involved.

3. Examine automation technology in the industry.

Assessment Strategies

3.1. Scenario Response

Criteria

3.1. you can analyze both the opportunities and the pitfalls that emerge when working with automation.
3.2. you can manage specific agricultural software platforms and tools used in automation.
3.3. you can design effective strategies for utilizing automation to improve agricultural efforts

Learning Objectives

3.a. Prepare a cost versus benefit analysis for various uses of automation in agriculture.

4. Examine engineering technology in the industry.

Assessment Strategies

4.1. Scenario Response

Criteria

4.1. you can critically analyze both the opportunities and the pitfalls that emerge when working with engineering technology to improve agricultural outcomes
4.2. connect relevant development theories to the engineering strategies and tools discussed in the course

Learning Objectives

4.a. Explain the impact of engineers on the interaction between agriculture and the environment.
4.b. Identify areas in which engineering impacts agricultural standards such as animal housing and manure management.