MASTER COURSE OUTLINE   **DATE: 4/30/20**
COURSE TITLE: Electrical II

Dept.: Agricultural Mechanics	Course Num: 221	(Formerly:)
CIP Code: 01.0205	Intent Code:	Program Code: 123

CREDITS: 6

Total Contact Hrs Per Qtr.: 88	Lecture Hrs: 44	Lab Hrs: 44
Distribution Design:		Other Hrs:

Prepared By: Brett Iksic

COURSE DESCRIPTION (as it will appear in the catalog)

This course takes an in-depth look at electrical systems, electrical components and best practices in component testing and troubleshooting. Students will be familiarized with CAN bus, ISOBUS, and controller communication, configuration, and programming. Students will gain hands-on experience testing and diagnosing components, locating electrical faults, and reading schematics. Students will apply these skills to various sensors and actuators used on agricultural equipment commonly found in the Columbia Basin.

PREREQUISITES: AUT 121 Automotive Electrical and Electronic Systems (required).

TEXTBOOK GUIDELINES: Textbook to be chosen by Agricultural Mechanics Faculty.

STUDENT LEARNING OUTCOMES: *Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills.*

1. Describe the operation and purpose of CAN bus and ISOBUS.
2. Test various components and CAN bus and ISOBUS circuits to identified standards.
3. Describe the purpose and application of various sensors and actuators.
4. Utilize schematics to diagnose and troubleshoot wiring issues.
5. Program and configure a controller.

INSTITUTIONAL OUTCOMES

3. Students will be able to demonstrate teamwork, ethics, safety awareness, and/or workplace specific skills related to agricultural mechanics.

COURSE CONTENT OUTLINE

1. CAN bus
   - Intro to CAN bus
   - CAN bus Components and Operation
   - CAN bus Testing
2. ISOBUS
   - ISOBUS Components and Operation
3. Sensors and Actuators
   - Sensors and Smart Sensors
   - Sensor Testing and Operation
   - Actuators
   - Actuator Testing and Operation
4. Troubleshooting Electrical Systems
5. Programing and Configuring

DEPARTMENTAL GUIDELINES *(optional)*

DIVISION CHAIR APPROVAL   **DATE**