Course Information Form (CIF)

Course Code: AGB 136

Course Title: Precision Hydraulic/Electrical Systems

Department: Agricultural Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 01.0205
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 1-2-2
Credit Hour Distribution:

Lecture: 1	Lab: 2	Clinical: 0	**Total: 2**

General Course Information

Catalog Description

Theoretical and practical application of mobile hydraulics and electrical. Includes open and closed center hydraulics, series and parallel circuits, Ohm's law and Pascal's law, testing, and diagnostics.

General Course Objectives

Students will obtain general basic knowledge of mobile hydraulics and electrical and how they synergize with precision agriculture systems.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 059

Prerequisites

Credit or concurrent enrollment in AGB 214

Methods of Evaluation

Methods of evaluation will include 11-13 chapter tests, 2 unit exams, 12 lab practicals, and 1 final exam.

Instructional Materials and Additional Supplies

Text will be based on segments of textbooks from Cengage.

Course Content

General Learning Outcomes (GLOs)

- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.
- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Classroom/Lab Safety	1. Discuss examples of safety protocols in the classroom and lab.	1	2	0
Hydraulic Theory	1. Describe and demonstrate fundamentals of basic hydraulic theory.	1	2	0
Electrical Theory	1. Discuss electron flow through conductors.	1	2	0
Hydraulic Fluids	1. Describe fluid principles under pressure and Pascal's law.	1	2	0
Ohm's Law	1. Demonstrate Ohm's law relating to voltage, amperage and resistance.	1	2	0
Hydraulic Pumps	1. Discuss fixed and variable displacement pumps.	1	2	0
Basic Circuitry	1. Describe parallel and series electrical circuits.	1	2	0
Control Valves	1. Repair directional and rotary control valves.	1	2	0
Batteries	1. Discuss wet and dry cell battery handling and evaluation.	1	2	0
Linear Actuators	1. Discuss hydraulic linear actuators.	1	2	0
Starting and Charging	1. Discuss starting and charging systems.	1	2	0
Fluid Conductors	1. Discuss fluid power conductors, ID, and service.	1	2	0
Electrical Connectors	1. Repair electrical connectors and harnesses.	1	2	0
Hydraulic Testing	1. Diagnose and test hydraulics on whole machines.	1	2	0
Electrical Testing	1. Diagnose and test electrical on whole machines.	1	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
15	30	0