

Course Code: DPE 130**Course Title:** Introduction to Diesel Electrical**Department:** Agricultural Technologies**Effective Date:** Summer 2026**PCS Code:** 1.2 - Occupational/Technical Instruction**CIP Code:** 47.0605**Repeatability:** 0

Credit Hours

Catalog Notation: 2-2-3**Credit Hour Distribution:**

Lecture: 2

Lab: 2

Clinical: 0

Total: 3

General Course Information

Catalog Description

Theoretical and practical application of machine electrical and Ohm's law, including series and parallel circuits. Application of starting and charging circuits and testing equipment. Proper repair techniques for circuits.

General Course Objectives

Students will be given basic understanding of electrical theory, circuit operations, and how they apply to diesel equipment.

Minimum Placement Levels

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

Prerequisites

None

Methods of Evaluation

Evaluation will be a minimum of 6 chapter tests, 13 lab practicals, midterm, and final exam.

Instructional Materials and Additional Supplies

Modern Diesel Technology Electricity And Electronics, 978-1-133-94980-0

Students will need tool set for lab. Tool list will be provided for student to purchase.

Course Content

General Learning Outcomes (GLOs)

- Communication: Students will demonstrate the ability to read, write, listen, and speak effectively.
- 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
Electricity Theory: How It Works and Electron Flow	1. Describe and demonstrate electron theory and use of electron flow.	6	3	0
Ohm's Law: a) voltage, b) amperage, c) resistance	1. Describe and demonstrate how Ohm's law operates and how it applies to electrical circuits.	5	4	0
Basic Circuitry: series circuits	1. Describe and demonstrate how series circuits operate and how to test them.	3	3	0
Basic Circuitry: parallel circuits	1. Describe and demonstrate how parallel circuits operate and how to test them.	3	3	0
Electrical Safety	1. Describe and demonstrate all aspects of safety that pertain to testing and repairing electrical circuits on mobile machinery.	3	3	0
Batteries: wet and dry cell handling; testing and charging batteries	1. Describe battery construction. 2. Demonstrate how to handle and store wet and dry cell batteries. 3. Test and charge wet and dry cell batteries.	2	3	0
Starting Circuits	1. Describe and demonstrate how starter motors are designed, including drives used. 2. Diagnose and repair starter problems.	2	2	0
Charging Circuits	1. Describe and demonstrate how alternators, generators, and regulators function. 2. Diagnose and repair charging circuits.	2	2	0
Testing Equipment	1. Describe and demonstrate use of volt ohm meter. 2. Take a reading with a volt meter. 3. Use a battery load tester. 4. Connect and use system chargers.	2	3	0
Connectors and Harness Repair	1. Describe and demonstrate connector ID and pin and socket repair. 2. Solder wiring connections. 3. Repair wiring harnesses.	2	4	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0