

Course Information Form (CIF)

Course Code: CNH 131

Course Title: Introduction to CNH Machine 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. Theoretical and practical application of Ohm's Law including series, parallel, and series-parallel circuits. Application of starting and charging circuits and testing equipment. Repair of electrical circuits with an emphasis on proper repair techniques.

General Course Objectives

Students will be given a basic understanding of electrical theory, circuit operations, and how they apply to CNH machinery.

Minimum Placement Levels

English	Reading	Math
None	Placement into CCS 098	None

Prerequisites

None

Methods of Evaluation

Students will be given 12 written exams, 12 quizzes, and 8 laboratory practicals and projects.

Instructional Materials and Additional Supplies

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

Students will need the required tool sets for the CNH Service Technician program.

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
Electricity Theory, How it Works, and Electron Flow	1. Describe and demonstrate electron theory and use of electron flow.	3	2	0
Ohm's Law: a) Voltage, b) Amperage, and 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.	2	3	0
Basic Circuitry: Parallel Circuits	1. Describe and demonstrate how parallel circuits operate, and how to test them.	2	3	0
Basic Circuitry: Series/Parallel Circuits	1. Describe and demonstrate how series/parallel circuits operate, and how to test them.	2	3	0
Electrical Safety	1. Describe and demonstrate all aspects of safety that pertain to testing and repairing electrical circuits on mobile machinery.	3	2	0
Batteries: a) Construction, Handling, and Storage of Wet and Dry cells; b) Testing; and c) Charging	1. Describe how batteries are constructed. 2. Demonstrate how to handle and store wet and dry cell batteries. 3. Test batteries and charge wet and dry cell batteries.	3	3	0
Starting Circuits	1. Describe and demonstrate how starter motors are designed, including drives used. 2. Diagnose and repair starter problems.	3	3	0
Charging Circuits	1. Describe and demonstrate how alternators, generators, and regulators function. 2. Diagnose and repair charging circuits.	3	3	0
Testing Equipment	1. Describe and demonstrate the use, function, and test capability of a digital volt ohm meter. 2. Take a reading with an amp meter. 3. Use a battery load tester. 4. Connect and use system chargers.	2	2	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Connectors and Harness Repair	1. Describe and demonstrate connector identification and pin and socket repair. 2. Solder wiring connections. 3. Repair wiring harnesses.	2	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0