

Course Code: CNH 231**Course Title:** Advanced 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: 3-1-3**Credit Hour Distribution:**

Lecture: 3

Lab: 1

Clinical: 0

Total: 3

General Course Information

Catalog Description

Case New Holland (CNH) machine electrical schematic reading, troubleshooting, diagnosis, and repair of monitoring systems, instrumentation, and other specialized electronic and computer-controlled equipment on CNH machinery and heavy equipment.

General Course Objectives

Learn to read electrical schematics. Learn how pulse width modulation functions. Learn the Controller Area Network (CAN) bus system. Learn how to troubleshoot electrical problems with 12 volt and 24 volt systems. Learn network problems. Learn how to retrieve error codes and how to use error codes in diagnosis and troubleshooting.

Minimum Placement Levels

English

None

Reading

None

Math

None

Prerequisites

Credit in CNH 131

Methods of Evaluation

Students will be given 12 objective exams and 12 lab practicals.

Instructional Materials and Additional Supplies

No textbook required. Uses manufacturers' tech manuals.

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
Electrical Schematics	1. Describe and demonstrate ability to identify electrical symbols, read system schematics, and identify subsystems.	18	2	0
Pulse Width Modulation	1. Describe pulse width modulation control of components and demonstrate how to troubleshoot.	4	1	0
Error Codes	1. Describe and demonstrate retrieval of error codes on equipment. 2. Use error codes in troubleshooting and clear stored codes.	4	2	0
CAN Bus	1. Describe what the Controller Area Network (CAN) bus system is and how to troubleshoot the CAN bus system. 2. Demonstrate how to use computers in troubleshooting with the CAN bus system.	9	10	0
Electrical Diagnosis	1. Demonstrate ability to diagnose live problems on CNH machinery.	10	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	15	0