Course Information Form (CIF)

Course Code: CNH 271

Course Title: Advanced CNH Powertrains

Department: Agricultural Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0605
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

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

Lecture: 2	Lab: 2	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Pressure and flow testing of powertrains used in Case New Holland (CNH) agriculture and construction equipment (CE). Calibration of transmissions. Theory and operation of final drives and shuttles.

General Course Objectives

Learn how to use advanced diagnostic test equipment as it applies to CNH Ag and CE powertrains. Learn how to calibrate electrically controlled transmissions, emphasis on troubleshooting and diagnosis techniques as they apply to powertrains. Learn disassembly and reassembly of final drives.

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in CNH 171
Credit or concurrent enrollment in CNH 255

Methods of Evaluation

Students will be given 4 objective exams, 4 lab practicals, and 2 performance exams.

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
Diagnostic Equipment	1. Describe and demonstrate how to hook up test gauges and equipment. 2. Test for clutch pack leakage and flow rate transmission pumps; evaluate what was measured.	5	4	0
Troubleshooting a Power Shift Transmission	1. Describe and demonstrate how to troubleshoot power shift transmissions using pressure readings and calibrate computer controlled transmissions. 2. Describe how to develop a troubleshooting path based on fault codes.	9	8	0
Shift Quality	1. Describe and demonstrate how to evaluate shift quality, how to change shift points, and how to match transmission outputs with load demands.	2	6	0
Hydrostatic Drive Systems	1. Describe and demonstrate how to flow rate charge pumps; how to measure charge pump PSI in forward, reverse and neutral; and how to take stall pressure readings.	6	6	0
Final Drives	1. Describe and demonstrate correct disassembly and reassembly of CNH Ag and CE final drives.	6	3	0
Torque Converters	1. Describe and demonstrate how a torque converter operates. 2. Demonstrate testing of a torque converter drive system.	2	3	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	0