**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

**I. GENERAL COURSE INFORMATION**

Course Number: CNHI 1205

Course Title: Articulated 4WD Tractor Systems

Credit Hours: 1-3 variable credit

Prerequisites: None

Division/Discipline: Workforce Training and Community Education- Case/New Holland

Course Description: This course is designed to acquaint the technician with the various operational systems utilized on large articulated tractors. Particular emphasis will be placed on electronic and hydraulic control systems operation, diagnostics, and repair.

Variable Credit: If the student enrolls in a 4-day face to face diagnostics class, then it is a 2 credit hour course. If the student enrolls in a 2-day product update class it is a 1 credit hour course, and if the student enrolls in the 6-week online and 2-day face to face class, it is a 3 credit hour course. All sections of the course cover the same material.

**II. INSTRUCTOR INFORMATION**

**III. COLLEGE POLICIES**

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated. The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at disabilityservices@bartonccc.edu.

**IV. COURSE AS VIEWED IN THE TOTAL CURRICULUM**

This course is one in a series of Case-New Holland Industrial Service Training courses. This course is not open to the general public, and is not designed as a transfer course.

The course will introduce articulated 4WD tractors. This program will familiarize the technician with the systems and operation of the articulated 4WD tractor. The technician will have sufficient shop time to become familiar with the new product.

**V. ASSESSMENT OF STUDENT LEARNING**

Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

Course Outcomes, Competencies, and Supplemental Competencies:

1. Identify the different components of the articulated 4WD tractor.
2. State the function of each component and how it is used on the tractor.
3. Identify the major components of the tractor system.
4. Understand the electrical system and its related components and functions on the tractor.
5. Demonstrate the diagnosing, testing, and repair of the Controller Area Network (CAN) data bus.
6. Use the instrumentation system to retrieve and accurately diagnose the electrical system faults
7. Define all controllers in the electrical system and their function.
8. Use the Electronic Service Tool to retrieve faults, preform component tests, and download software.
9. Understand the engine, transmission, and axles and their related controllers and components on the tractor.
	* 1. Define the components and their functions in the fuel system.
		2. Accurately diagnose and repair the two-stage cooling system.
		3. Define the components of the Selective Catalytic Reduction (SCR) system, related controllers, and their functions on the tractor.
		4. Analyze the power flow through the transmission, calibration of Pulse Width Modulated (PWM) solenoid engaged clutches, how to diagnose faults, and make repairs to the transmission.
		5. Define the lubrication circuit and the different applications for each axle/drive component application.
10. Understand the tractor hydraulic system and its related components and functions on the tractor.
	* 1. Define and demonstrate hydraulic testing procedures to accurately diagnose faults.
		2. Demonstrate how to adjust the hydraulic Pressure Flow Compensated (PFC) system for optimum performance and economy.
		3. Accurately set the remote hydraulic system to customer specifications.

**VI. INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS**

**VII. TEXTBOOKS AND OTHER REQUIRED MATERIALS**

**VIII. REFERENCES**

**IX. METHODS OF INSTRUCTION AND EVALUATION**

 **X. ATTENDANCE REQUIREMENTS**

**XI. COURSE OUTLINE**