

Accessories and Electronics

Course Outcome Summary

Course Information

Organization	Madison Area Technical College
Developers	Stuart Schlough
Development Date	1/30/2003
Course Number	10-070-182
Instructional Level	Associate Degree
Potential Hours of Instruction	72
Total Credits	3

Description

This course will introduce the student to the type and operation temperature, pressure and speed sensors. Students will be introduced to the central control unit (CCU) and the hitch control unit (HCU). Students will be shown the procedure for recalling codes and transmission calibration procedures. This course will provide the electrical certification for John Deere Technicians. CrLf

Target Population

Adult learners who are interested in seeking employment as an entry level technician in the agricultural equipment repair and service industry.

Types of Instruction

Instruction Type	Contact Hours	Credits
Simulated or Actual Work Experience	72	3

Textbooks

John Deere Electrical/Electronics and Certification Manual.

John Deere Technical Manuals.

Learner Supplies

Lead pencil.

Ballpoint pen.

Three-ring binder.

Note pad.

Prerequisites

Electrical Systems (10-070-176)

Exit Learning Outcomes

Core Abilities

- A. Communication
- B. Critical thinking
- C. Ethics
- D. Mathematics
- E. Self-management
- F. Social interaction

Competencies

A. Explain basic electrical/electronic system principles

Linked Core Abilities

Communication
Critical thinking
Ethics
Mathematics

You will demonstrate your competence:

- A.1. through a written exam with 70% or better grade
- A.2. given the appropriate references and formulas common to agricultural industry through completion of a worksheet

Your performance will be successful when:

- A.1. you explain basic electrical/electronic system principles
- A.2. you calculate voltage, amperage and resistance using Ohm's Law
- A.3. you calculate other simple electrical/electronic equations

B. Identify the basic types of electrical/electronic systems and the components

Linked Core Abilities

Communication
Critical thinking
Ethics
Self-management

You will demonstrate your competence:

- B.1. through the identification of different types of electrical/electronic systems
- B.2. through the identification of components on demonstration boards given the appropriate reference schematics, diagrams and manuals
- B.3. by completing assigned worksheets

Your performance will be successful when:

- B.1. you identify the basic types of electrical/electronic systems used on equipment
- B.2. you identify the different kinds of components used in heavy-duty electronics

C. Explore the function and operation of electrical/electronic system components

Linked Core Abilities

Communication
Critical thinking
Ethics
Mathematics
Self-management

You will demonstrate your competence:

- C.1. through a written exam with 70% or better grade
- C.2. through completion of worksheets

Your performance will be successful when:

- C.1. you explore the function and operation of electrical/electronic system diodes
- C.2. you explore the function and operation of electrical/electronic system transistors
- C.3. you explore the function and operation of electrical/electronic system capacitors
- C.4. you explore the function and operation of electrical/electronic system relays
- C.5. you explore the function and operation of electrical/electronic fuses,
- C.6. you explore the function and operation of electrical/electronic system rheostats
- C.7. you explore the function and operation of electrical/electronic system potentiometer
- C.8. you explore the function and operation of electrical/electronic system microprocessors

D. Demonstrate safe work habits when working on equipment and vehicle electrical systems

Linked Core Abilities

- Communication
- Critical thinking
- Ethics
- Self-management
- Social interaction

You will demonstrate your competence:

- D.1. given personal and environmental safety equipment
- D.2. given the appropriate references
- D.3. through a written exam with 70% or better grade

Your performance will be successful when:

- D.1. you explain the importance of safety when working on equipment and vehicle electrical systems
- D.2. you follow all personal safety practices
- D.3. you meet industry standards for the repair and service of equipment

E. Interpret electrical/electronic system symbols, schematics and diagrams

Linked Core Abilities

- Communication
- Critical thinking
- Ethics
- Self-management

You will demonstrate your competence:

- E.1. given the appropriate reference material and manufacturer's manuals
- E.2. through the completion of a worksheet
- E.3. when current flow through an electrical/electronic circuit can be traced on a schematic or diagram with no error after 3 tries

Your performance will be successful when:

- E.1. you interpret electrical/electronic system symbols
- E.2. you interpret electrical/electronic system schematics
- E.3. you interpret electrical/electronic system diagrams

E.4. you track current flow through electronic circuits on equipment schematics

F. Inspect, select, apply, and maintain electrical/electronic system terminals, connectors, wire and cable

Linked Core Abilities

Communication

Critical thinking

Ethics

Self-management

You will demonstrate your competence:

F.1. given the required connectors and wire

F.2. given the proper tools and equipment

F.3. when terminations and wiring repairs have been made

Your performance will be successful when:

F.1. you identify the kinds of connectors and wire terminations

F.2. you inspect electrical/electronic connectors, terminals and wiring

F.3. you maintain electrical/electronic connectors, terminals and wiring

F.4. you select and apply electrical/electronic system terminals, cable ends and connectors

F.5. you perform soldering operations on terminal ends, cable ends, and electrical wiring

F.6. you meet industry standards for repair and service of electrical/electronic systems

G. Select and use the basic types of electrical/electronic test equipment

Linked Core Abilities

Communication

Critical thinking

Ethics

Mathematics

Self-management

You will demonstrate your competence:

G.1. given the proper tools and equipment

G.2. given the appropriate references

G.3. given a piece of equipment, or their components

G.4. given the appropriate repair orders

G.5. when the tests have been completed and the correct evaluation of the condition of the system has been determined

G.6. through a written exam with 70% or better grade

Your performance will be successful when:

G.1. you select the appropriate tools and equipment

G.2. you check an electrical/electronic system for opens, shorts, and grounds

G.3. you perform electrical/electronic system tests using AMP, volt, and ohm meter

G.4. you use test lights, load testers and other basic test equipment common to the agricultural industry

G.5. you meet industry standards for repair and service of electrical/electronic systems