

**SOUTHEAST COMMUNITY COLLEGE**  
**TRANSPORTATION DIVISION**  
**DEERE CF EQUIPMENT TECH**  
**COURSE SYLLABUS**  
**November 20, 2020**

[Syllabus Statements](#)

**I. CATALOG DESCRIPTION**

Course Number: JDCE1120  
Course Title Deere Electrical/Electronics I  
Prerequisite(s): None  
Co-requisite(s): None

Catalog Description: Basic electrical principles and applications of magnetism, electromagnetism, and the safe utilization of electrical test meters are covered. Understanding and using the basic principles of Ohms Law to understand circuit malfunctions will also be covered. The design, construction, and safe operation and testing of lead acid batteries is part of this class. Principles of operation, testing, and repair of basic cranking systems are included. Safety is stressed in this course.

Credit Hours: 3.5  
Class Hours: 23  
Lab Hours: 90  
Total Contact Hours: 113

**II. COURSE OBJECTIVES:** *Course will:*

- A.** Explain the basic theory of electron flow and electromagnetism.
- B.** Cover Ohms Law and Circuit Configurations.
- C.** Allow hands on experience measuring electricity amperage, voltage and measuring component resistance.
- D.** Explain the operation and use of electronic components.
- E.** Cover how to repair and diagnose electrical systems safely.
- F.** Allow hands on experience servicing and testing storage batteries.
- G.** Explain operation and repair of charging circuits.
- H.** Explain operation and repair of starting circuits.

**III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES**

**A. STUDENT LEARNING OUTCOMES:** *Student will be able to:*

- 1. Explain the basics of electricity and how it works.
- 2. Understand the basics and uses of electromagnetism.
- 3. Explain voltage, current, and resistance.
- 4. Create a series and parallel circuit on an electrical board.
- 5. Calculate voltage, current and resistance in a circuit using Ohm's law.
- 6. Calculate power (Watts)
- 7. Use a digital multimeter to measure current, voltage and component resistance.
- 8. Read wiring diagrams and schematics.

9. Test and diagnose the components of a starting circuit
10. Explain how a starting motor works.
11. Test and diagnose the components of a charging circuit.
12. Explain how an alternator works in a charging circuit.
13. Explain the function of and use of many electronic components.
14. Explain how a storage battery works and how it is used.
15. Maintain, charge and load test a battery
16. Safely work around electricity and batteries

**B. GENERAL EDUCATION LEARNING OUTCOME:**

**GELO 3: Critical Thinking & Problem Solving**

1. Collect, identify, interpret and analyze data.
2. Synthesize information to arrive at reasoned solutions to problems.
3. Acquire and integrate knowledge and construct relationships across disciplines.

**IV. CONTENT/TOPICAL OUTLINE**

- A. Electricity – How it works
- B. Measuring the electron
- C. Electronic components
- D. Circuit lab
- E. Electricity safety
- F. Storage batteries
- G. Battery lab
- H. Charging circuits
- I. Charging system lab
- J. Starting circuits
- K. Starting circuit lab

**V. INSTRUCTIONAL MATERIALS**

**Required text(s):** Service Advisor (made available in the classroom)  
FOS Electronic and Electrical Systems

**Other material(s):** Required tool set, safety glasses (regulation Z87), leather shoes, John Deere uniform, Colored pencils, notebook, writing instruments

**VI. METHODS OF PRESENTATION/INSTRUCTION**

**A. Methods of presentation typically include a combination of the following:**

1. Small and large group discussion
2. Video presentations
3. Demonstrations
4. Project boards
5. Flip charts
6. Handouts
7. Observations
8. Field trips

**VII. METHODS OF EVALUATION**

**A. Methods of evaluation typically include a combination of the following:**

1. Notebook (if required)
2. Quizzes
3. Tests

4. Lab Grades
5. Reflection assignments

Grading will follow the SCC Standard Grade Scale Policy. See **Course Information Document** for specific details on how the course grades are calculated.

**VIII. SPECIFIC COURSE REQUIREMENTS:**

- A. Students must complete all tests, projects, assignments, and notebook (if required).
- B. Students must earn a final grade of 70% (2.0) or higher.
- C. Program safety rules will be followed. See the **Course Information Document** for any additional safety rules established by the instructor.
- D. Safety belts will be worn at all times, on or in any motorized vehicle, if equipped.
- E. Attendance and participation. See **Course Information Document** for attendance and participation policy.