SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLGIES & SKILLED TRADES DIVISION
JOHN DEERE TECH
COURSE SYLLABUS
September 10, 2025

I. CATALOG DESCRIPTION

Course Number: JDAT1121
Course Title John Deere Electrical and Electronics I
Prerequisite(s): None

Catalog Description: Basic electrical principles and applications of magnetism, electromagnetism, and the safe utilization of electrical test meters are 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 ignition systems, cranking systems, and charging systems are included. Proper assembly and disassembly of electrical connectors will also be covered.

Credit Hours: 6
Class Hours: 38
Lab Hours: 158
Total Contact Hours: 196

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.
- **I.** Cover the different types of electrical connectors

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
17. Properly remove and replace pins in connectors
18. Name and find connectors and pins in proper manual

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. Fundamentals and orientation
B. System operations
C. System inspection/diagnosis
D. System testing and adjusting

V. INSTRUCTIONAL MATERIALS

Required text(s): John Deere Fundamentals of Service, Electrical/Electronics
Other material(s): Required tool set
Safety glasses (regulation Z87)
Leather shoes/work boots
John Deere uniform
Colored pencils
Notebook
Writing instruments
RACF identification and password

VI. METHODS OF PRESENTATION/INSTRUCTION

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

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

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.