SOUTHEAST COMMUNITY COLLEGE
TRANSPORTATION OCCUPATIONS
DIESEL –AG EQUIPMENT SERVICE TECH
COURSE SYLLABUS
October 2, 2019

Syllabus Statements

I. CATALOG DESCRIPTION

Course Number: AGST1220
Course Title: Electrical Systems III
Prerequisite(s): AGST1110, AGST1130, AGST1140

Catalog Description: Review of fundamentals and introduction to basic electronics plus procedures and use of digital multi-meter in electrical circuits. An introduction to combine and tractor electrical systems included as well as troubleshooting techniques for circuit diagnosis using electrical schematics. Function, operation, and testing of semiconductors and transistors. Microprocessor operation, including inputs and outputs. CAN BUS theory of operation and testing is included. Testing of tractor circuits including lighting, accessory, safety, instrumentation and gauges is included in the lab exercises.

Credit Hour: 3.5
Class Hours: 30
Lab Hours: 68
Total Contact Hours: 98

II. COURSE OBJECTIVES: *Course will:*

A. Cover safety procedures.
B. Give the student the knowledge to diagnose, dissemble, evaluate, assemble, and test the cranking, charging, lighting, instrumentation, monitoring, and control circuits.
C. Cover electrical principles of DC circuits.
D. Cover digital multi-meters.
E. Cover semiconductors for mobile vehicles.
F. Cover microprocessor circuits.
G. Cover schematic wiring diagrams.
H. Cover wire repair / types of connectors.
I. Cover diagnosis procedures.
J. Cover Hazard Communication and Globally Harmonized Systems as well as specific program rules for tool and equipment use.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES: *The student will be able to:*

1. Demonstrate the correct procedure to diagnose, dissemble, evaluate, assemble, and test the cranking, charging, lighting, instrumentation, monitoring, and control circuits.
2. Perform safety procedures related to the Hazard Communication and Globally Harmonized Systems as well as specific program rules for tool and equipment use.

3. Comprehend electrical principles and Ohm's law.
4. Use the Digital Multi-Meter (DMM) to perform testing of components and circuits.
5. Identify, locate and test semiconductors found on Ag Equipment.
6. Find, read and analyze wiring schematics Perform wiring and connector repair.
7. Diagnose electrical failures using OE dealer tools and DMM.
8. Describe the Concern, Cause and Correction of customer production work.

B. GENERAL EDUCATION LEARNING OUTCOME:

GELO #3: Critical Thinking & Problem Solving

Outcomes:

1. Collect, identify, interpret and analyze data.
2. Synthesize information to arrive at reasoned solutions to problems.
3. Evaluate ideas presented in writing, medial, speech, or artistic presentations.
4. Evaluate the validity of arguments, alternatives, data, outcomes, and/or impacts of actions.
5. Acquire and integrate knowledge and construct relationships across disciplines.

IV. CONTENT/TOPICAL OUTLINE

A. Safety
B. Ohm's Law
C. Meters
D. Electrical schematics
E. Wiring / connectors
F. Lighting systems
G. Microprocessor / CAN BUS system
H. Cranking systems
I. Electrical Charging systems

V. INSTRUCTIONAL MATERIALS

Required Text(s): John Deere Service Publications-Fundamentals of Service/Electrical Systems Principles of Electricity & Electronics - Chapman

Tools: See current required tool list.

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 presentation
4. Demonstrations
5. Project boards
6. Handouts
7. Observations
8. Assigned lab projects
9. Field trips

This is an Engaged Learning course which will require students to use a variety of learning tools to achieve the learning outcomes.

VII. METHODS OF EVALUATION

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

1. Quizzes
2. Tests
3. Lab performance
4. Homework

Letter grades will be based on the SCC Standard Grade Scale Policy.

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must:

1. Complete all tests, projects, assignments and activities.
2. Earn a final grade of 70% (2.0) or higher to progress in this program.

B. Program shop safety rules will be followed. Please see the course information document for any additional safety rules established by the instructor.

C. Attendance:

1. Attendance is required for successful completion of this course.
2. Each instructor will inform students by means of a Syllabus and Course Information Document of attendance requirements at the first class meeting.
3. Students are expected to complete all assignments / homework by the assigned due date/time, and attend all sessions for class and lab.
4. It is expected that students will be on time and present for all scheduled class / lab times unless PRIOR arrangements have been made with the instructor.
5. Missed class or lab sessions, regardless of cause, reduces the opportunity for learning and may affect student learning outcomes and the student's grades.
6. Students are responsible for all content missed, regardless of the reason for the absence.
7. Whenever possible students must notify the instructor if unable to attend any class/lab session.
8. Emergency absences will be considered on an individual basis to determine if learning activities can reasonably be rescheduled during the current session.

D. Participation:

1. For every hour of classroom learning students are expected to perform two hours of related studies as homework or hands-on / simulated / on-line activities outside the classroom.
2. Students are expected to be responsible for meeting scheduled class / lab / homework & assigned due dates unless prior arrangements have been made with the instructor 24 hours before the due date.
3. Students are expected to complete all exams, quizzes, lab activities and assignments / homework at the scheduled times unless PRIOR arrangements have been made with the instructor before the due date and time.
4. When reasonably possible, and only when prior arrangements have been made, students may ask the instructor to have a test or exam rescheduled prior to 24 hours before the activities scheduled date and time.
5. Unscheduled Quizzes may be given at any time and may not be repeated or taken at a later time, unless approved by the instructor.
6. Exceptions due to emergency absences will be considered on an individual basis.