**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

1. **GENERAL COURSE INFORMATION**

Course Number: AUTO 1116

Course Title: Electrical III

Credit Hours: 4

Prerequisite: AUTO 1114 Electrical II

Division/Discipline: Workforce Training and Economic Development/Automotive Technology

Course Description: Electrical III is a capstone course designed to build upon students’ cumulative knowledge of automotive electrical/electronic systems. Students will perform analysis and repair of electrical systems in a live-shop environment.

# **INSTRUCTOR INFORMATION**

# **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](mailto:disabilityservices@bartonccc.edu)

# **COURSE AS VIEWED IN THE TOTAL CURRICULUM**

Electrical III is a capstone course in the area of electrical/electronics. This course follows the curriculum standards defined by NATEF (National Automotive Technicians Education) Foundation.)

# **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. Interpret electrical symbols/wiring diagrams.

Linked NATEF Standards: 6.A.1 – 6.H.11.

1. Examine electrical wiring diagrams and distinguish current path(s).
2. Breakdown electrical wiring diagrams and devise a diagnostic plan.
3. Perform tests and analysis of electrical/electronic circuits.
4. Utilize a digital multimeter to evaluate circuit integrity.

Linked NATEF Standards: 6.A.1 – 6.H.11

1. Set-up multimeter to measure volts, ohms and amperage.
2. Utilize terminal adapters, jumper wires and/or piercing probe to access electrical test point.
3. Evaluate resistance, voltage and current measurements; determine circuit integrity.
4. Utilize a digital lab scope to evaluate circuit integrity.

Linked NATEF Standards: 6.A.1 – 6.H.11

1. Select appropriate voltage scale and time base for the circuit being tested.
2. Synchronize lab scope to capture voltage and current waveforms.
3. Utilize terminal adapters and probes to access electrical test points.
4. Repair electrical wiring, terminals, switches, and actuators.

Linked NATEF standards: 6.A.1 – 6.H.11

1. Identify electrical/electronic concern.
2. Perform electrical tests and analysis, identify malfunction.
3. Repair electrical/electronic malfunction.
4. Verify repair.
5. Formulate a diagnostic and repair strategy.
6. Interpret customer concern.
7. Identify factory service bulletins.
8. Interpret scan data and diagnostic trouble codes.
9. Perform visual inspection, identify possible causes.
10. Interpret vehicle repair information (wiring diagrams, test procedures).
11. Evaluate electrical test results.
12. Assess repair needs.
13. Perform electrical repairs in accordance with recommended service procedures.
14. Verify repair.

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

# **TEXTBOOKS AND OTHER REQUIRED MATERIALS**

# **REFERENCES**

# **METHODS OF INSTRUCTION AND EVALUATION**

# **ATTENDANCE REQUIREMENTS**

# **COURSE OUTLINE**