

Minnesota State College Southeast

ABCT 1315: Auto Body Basic Electrical

A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

D.C. theory is the starting point for this course which focuses on how circuits work and troubleshooting procedures needed to test them on vehicles. Multi-meters are used to take readings for voltage, amperage, resistance, and voltage drop. Once problem areas are identified repair or replacement procedures are used to fix wiring, connections, or faulty components. Service information is utilized to access vehicle specific circuits for troubleshooting and repairs. (Prerequisites or concurrent: ABCT1115, ABCT1145) (2 credit: 1 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 02/23/2015 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Demonstration of knowledge of D.C. electrical theory, terminology, and circuit relationships
2. Development of electrical troubleshooting procedures and repair methods
3. Testing of circuits and circuit components
4. Use of wiring diagrams for troubleshooting and understanding circuit relationships
5. Understanding of protection of electrical components and circuits

D. LEARNING OUTCOMES (General)

1. Demonstrate safe and professional practices
2. Explain electrical relationships and basics of Ohm's law for D.C. theory
3. Identify needed components for an electrical circuit and the role of each component
4. Perform resistance, voltage, amperage, and voltage drop readings
5. Describe parallel, series, and series parallel circuits
6. Define and perform the steps for trouble shooting circuits
7. Test relays, solenoids, motors, switches, rheostats, circuit protection devices, and other electrical components
8. Identify various circuit protection devices and explain how they work
9. Identify wire gauge sizing and perform repair methods for wiring harnesses
10. Identify electrical symbols and terminology
11. Use wiring diagrams for troubleshooting and explaining circuit relationships
12. Troubleshoot exterior lighting systems, identify needed repairs, and perform repairs
13. Troubleshoot power seats, locks, windows, deck lid and hatch releases, wipers, horns, and power mirrors
14. Troubleshoot accessory systems using wiring diagrams and troubleshooting service data from OEM and internet sources
15. Demonstrate knowledge of wiring routing, shielding, and proper securing to vehicle
16. Demonstrate proper handling procedures for computerized and other sensitive electronic components
17. Identify sensor operations and testing procedures
18. Participate in class discussions and complete all course work, quizzes, and tests

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted