



AUTOMOTIVE FUNDAMENTALS — AUTM 1003

A. Course Description

- **Credits:** 2.00
- **Lecture Hours/Week:** 1.00
- **Lab Hours/Week:** 1.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **Corequisites:** None
- **MnTC Goals:** None

This course covers automotive industry fundamental knowledge and operations as well as basic automotive electrical theories, diagnosis, and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and your textbook.

B. Course Effective Dates: 8/21/17 – Present

C. Outline of Major Content Areas

As noted on course syllabus

D. Learning Outcomes

1. Check continuity and resistances in electrical/electronic circuits and components with an ohmmeter; determine necessary action.
2. Check electrical circuits using fused jumper wires; determine necessary action.
3. Check electrical circuits with a test light; determine necessary action.
4. Create a resume
5. Decode a vehicle identification number (VIN)
6. Demonstrate safe handling and use of appropriate tools.
7. Demonstrate the proper use of a digital multi-meter (DMM) during diagnosis of electrical circuit problems.
8. Describe the evolution of engines
9. Describe the personal protective equipment (PPE) used by technicians
10. Diagnose electrical/electronic integrity for series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law)
11. Discuss shop safety procedures
12. Discuss the process of applying for employment and facing an interview

13. Explain the evolution of the automobile
14. Explain the requirements for becoming an ASE certified technician
15. Identify and interpret electrical/electronic system concern: determine necessary action.
16. Identify and measure Bolt ID
17. Identify tools and their usage in automotive applications.
18. Inspect and test fusible links, circuit breakers and fuses; determine necessary action.
19. Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply.
20. List the eight areas of automotive service according to ASE/NATEF
21. Locate and demonstrate knowledge of MSDS
22. Measure current flow in electrical/electronic circuits and components.
23. Measure source voltage and perform voltage drop tests in electrical/electronic circuits using a voltmeter: determine necessary action.
24. Perform slow/fast battery charge according to manufacturer's recommendations.
25. Perform solder repair of electrical wiring.
26. Prepare a service repair order (RO)
27. Repair wiring harnesses and connectors and terminal ends.
28. Research applicable vehicle and service information, such as electrical/electronic system operation, vehicle service history, service precautions, and technical service bulletins.

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

F. Learner Outcomes Assessment

As noted on course syllabus

G. Special Information

None noted