Dakota County Technical College

AUTM 2110: Automotive Engine Electrical Systems

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers automotive batteries, starting and charging system theories, diagnosis and repair procedures using various types of tools and test equipment and reference materials available in Alldata, Mitchell and student textbook. Prerequisites: AUTM2100

B. COURSE EFFECTIVE DATES: 06/01/2010 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Complete repair orders to include customer information vehicle identifying information, customer concern, related service history, cause, and correction
2. Identify and demonstrate industry recognized professionalism and safety procedures
3. Identify and demonstrate proper use of various automotive tools and equipment
4. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration labels)
5. Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins
6. Inspect, clean, fill, and replace battery
7. Maintain or restore electronic memory functions
8. Perform battery capacity test (or conductance test); confirm proper battery capacity for vehicle application; determine necessary action
9. Perform battery state-of-charge test; determine necessary action
10. Perform slow/fast battery charge
11. Inspect and clean battery cables, connectors, clamps, and hold-down; repair or replace as needed
12. Diagnose charging system for the cause of undercharge, no-charge, and overcharge conditions
13. Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition
14. Inspect and test starter relays and solenoids; determine necessary action
15. Inspect and test switches, connectors, and wires of starter control circuits; perform necessary action
16. Inspect, adjust, or replace generator (alternator) drive belts, pulleys, and tensioners; check pulley and belt alignment
17. Perform charging circuit voltage drop tests; determine necessary action
18. Perform charging system output test; determine necessary action
19. Perform starter circuit voltage drop tests; determine necessary action
20. Perform starter current draw tests; determine necessary action
21. Remove and install starter in a vehicle
22. Remove, inspect, and install generator (alternator)
23. Start a vehicle using jumper cables and a battery or auxiliary power supply

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted