

# Dakota County Technical College

## AUTM 2330: Advanced Driveability

### A. COURSE DESCRIPTION

Credits: 5

Lecture Hours/Week: 1

Lab Hours/Week: 4

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite  
AUTM 2100 - Basic Automotive Electricity

Corequisites: None

MnTC Goals: None

This course covers the operation and servicing techniques required to diagnose and repair driveability concerns encountered on modern automobiles. Live work will be stressed in this course. Prerequisite: Successful completion of AUTM2315 Ignition System Operation, Diagnosis and Repair, AUTM2322 Fuel Systems Operation, Diagnosis, and Repair, and AUTM2325 Computer Systems Operation Diagnosis and Repair with a minimum overall score of 70% OR concurrent enrollment in course 2960 Skill Development with instructor approval.

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

**C. OUTLINE OF MAJOR CONTENT AREAS**

#### **D. LEARNING OUTCOMES (General)**

1. Complete work order 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. Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins
5. Demonstrate the proper use of a digital multimeter (DMM) during diagnosis of electrical circuit problems
6. Diagnose electrical/electronic integrity for series, parallel, and series parallel circuits using principles of electricity (Ohm's Law)
7. Diagnose emissions and drivability problems caused by malfunctions in the exhaust gas recirculation (EGR) system; determine necessary action
8. Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns with an oscilloscope and engine diagnostic equipment; determine necessary action
9. Diagnose oil leaks, emissions, and drivability problems resulting from malfunctions in the positive crankcase ventilation (PCV) system; determine necessary action
10. Diagnose unusual engine noise or vibration concerns; determine necessary action
11. Diagnose unusual exhaust color, odor, and sound; determine necessary action
12. Inspect and test electrical/electronic sensors, controls, and wiring of exhaust gas recirculation (EGR) systems; perform necessary action
13. Inspect engine assembly for fuel, oil, coolant, and other leaks, determine necessary action
14. Inspect the integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shield(s); perform necessary action
15. Inspect, test, and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action
16. Inspect, test, service, and replace components of the EGR system, including EGR tubing, exhaust passages, vacuum/pressure controls, filters and hoses; perform necessary action
17. Locate and interpret vehicle and major component identification numbers
18. Measure current flow in electrical/electronic circuits and components using an ammeter; determine necessary action
19. Perform exhaust system back-pressure test; determine necessary action
20. Prepare 4 or 5 gas analyzer; inspect and prepare vehicle for test, and obtain exhaust readings; interpret readings, and determine necessary action
21. Remove and replace terminal end from connector
22. Repair wiring harnesses (including LAN/CAN/BUS systems)
23. Repair wiring harnesses (including LSN/CAN/BUS systems)
24. Repair wiring harnesses and connectors and terminal ends
25. Study exhaust gas recirculation operation
26. Study positive crankcase ventilation operation
27. Test the operation of turbocharger/supercharger systems; determine necessary action
28. Use wiring diagrams during diagnosis of electrical circuit problems
29. Verify engine operating temperature; determine necessary action

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted