

# Dakota County Technical College

## **AUTM 2315: Ignition System Operation, Diagnosis and Repair**

### **A. COURSE DESCRIPTION**

Credits: 3

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites:

- AUTM 2100 - Basic Automotive Electricity AND AUTM 2110 - Automotive Engine Electrical Systems

Corequisites: None

MnTC Goals: None

This course covers the operation and servicing techniques required to diagnose and repair ignition system related concerns encountered on modern automobiles. Prerequisites: AUTM2100

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

**C. OUTLINE OF MAJOR CONTENT AREAS**

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

1. Check and adjust ignition system timing and timing advance/retard (where applicable)
2. Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause and correction
3. Diagnose ignition system related problems such as no-starting, hard starting, engine misfire, poor drivability, spark knock, power loss, poor mileage, and emissions concerns on vehicles with distributor ignition (D1) systems; determine necessary action
4. Diagnose ignition system related problems such as no-starting, hard starting, engine misfire, poor drivability, spark knock, power loss, poor mileage, and emissions concerns on vehicles with electronic ignition (distributor-less) systems; determine necessary action
5. Diagnose unusual engine noise or vibration concerns; determine necessary action
6. Diagnose unusual exhaust color, odor, and sound; determine necessary action
7. Identify and demonstrate industry recognized professionalism and safety procedures
8. Identify and demonstrate proper use of various automotive tools and equipment
9. Inspect and test ignition coil(s); perform necessary action
10. Inspect and test ignition primary circuit wiring and solid state components; inspect, test, and service distributor
11. Inspect and test ignition system pick-up sensor or triggering devices; perform necessary action
12. Inspect and test ignition system secondary circuit wiring and components; perform necessary action
13. Inspect engine assembly for fuel, oil, coolant, and other leaks, determine necessary action
14. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration decals)
15. Perform cylinder cranking compression test; determine necessary action
16. Perform cylinder leakage test; determine necessary action
17. Perform cylinder power balance test; determine necessary action
18. Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action
19. Perform engine running compression test; determine necessary action
20. Perform tune on customer vehicle
21. Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins

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

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted