ENGINE PERFORMANCE 3 — AUTM 2334

A. **Course Description**

- **Credits:** 3.00
- **Lecture Hours/Week:** 1.00
- **Lab Hours/Week:** 2.00
- **OJT Hours/Week:** 0
- **Prerequisites:** None
- **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: 1003,1013,2314, and 2324

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

C. **Outline of Major Content Areas**

As noted on course syllabus

D. **Learning Outcomes**

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 each type of ignition system; determine necessary action
4. Diagnose unusual engine noise or vibration concerns; determine necessary action
5. Diagnose unusual exhaust color, odor, and sound; determine necessary action
6. Identify and demonstrate industry recognized professionalism and safety procedures
7. Identify and demonstrate proper use of various automotive tools and equipment
8. Inspect and test ignition coil(s); perform necessary action
9. Inspect and test ignition primary circuit wiring and solid state components; inspect, test, and service distributor
10. Inspect and test ignition system pick-up sensor or triggering devices; perform necessary action
11. Inspect and test ignition system secondary circuit wiring and components; perform

necessary action

12. Inspect engine assembly for fuel, oil, coolant, and other leaks, determine necessary action
13. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration decals)
14. Perform cylinder cranking compression test; determine necessary action
15. Perform cylinder leakage test; determine necessary action
16. Perform cylinder power balance test; determine necessary action
17. Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action
18. Perform engine running compression test; determine necessary action
19. Perform ignition system diagnosis/repairs on customer vehicle
20. Remove and replace spark plugs; inspect secondary ignition components for wear and damage.
21. Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins
22. Verify correct camshaft timing.
23. Verify engine operating temperature; determine necessary action.

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

F. **Learner Outcomes Assessment**

As noted on course syllabus

G. **Special Information**

None noted