# Engine Performance II Course No. 40222 Credit: 0.5

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| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes: **Vehicle Maintenance & Repair (47.0600)**

Course Description: A comprehensive, **application level** course designed to provide students with the skills needed to inspect, service, and repair engine control systems. (Prerequisite: Engine Performance I.)

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: General Diagnosis

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Demonstrate and apply safe working practices with tools and machines. |  |
| 1.2 | Identify and follow safety procedures as outlined in OSHA guidelines. |  |
| 1.3 | Perform cylinder power balance test; determine necessary action. |  |
| 1.4 | Perform cylinder cranking and running compression tests; determine necessary action. |  |
| 1.5 | Perform cylinder leakage test; determine necessary action. |  |
| 1.6 | Verify camshaft mechanical, hydraulic, and electronic timing.  |  |

## Benchmark 2: computerized controls

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Retrieve and interpret computer diagnostic codes and data to repair computer related engine problems |  |
| 2.2 | Identify, remove, and replace faulty computer input sensors and output devices. |  |
| 2.3 | Locate and interpret computer diagnostic monitor data. |  |
| 2.4 | Use a scan tool to record and interpret computer data information. |  |
| 2.5 | Explain the process used to download and install on-board computer updates. |  |

## Benchmark 3: ignition system diagnosis and repair

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Remove and replace spark plugs |  |

## Benchmark 4: Fuel, Air, induction, and exhaust systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Diagnose fuel and air induction system problems; determine necessary action. |  |
| 4.2 | Inspect, repair, and/or replace fuel supply components. |  |
| 4.3 | Disassemble, clean, inspect, and replace fuel injection components. |  |
| 4.4 | Replace fuel filter |  |
| 4.5 | Inspect integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; perform necessary action. |  |
| 4.6 | Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; repair or replace as needed. |  |
| 4.7 | Check and refill diesel exhaust fluid (DEF). |  |

## Benchmark 5: Emissions systems and miscellanious

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Diagnose emission control systems problems and determine necessary action. |  |
| 5.2 | Clean, inspect, and replace positive crankcase ventilation (PCV) system components. |  |
| 5.3 | Clean, inspect, and replace exhaust gas recirculation (EGR) components. |  |
| 5.4 | Test, inspect, and replace exhaust treatment components. |  |
| 5.5 | Test, inspect, and replace fuel vapor control system components. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

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