# Engine Performance II Course No. 40222 Credit: 0.5

|  |  |  |  |
| --- | --- | --- | --- |
| **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

[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.