# Diesel & Heavy Equipment Technology II Course No. 40238 Credit: 1.0

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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 knowledge in the theory of operation, the equipment, and the skills necessary for employment in the field of heavy equipment technician, to include over the road trucks, mining/construction and agriculture equipment.

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.

**Prerequisite:** Diesel & Heavy Equipment Technology I (40218)

## Benchmark 1: Shop Operations and Safety

### 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 | Identify and retrieve sources of service information. |  |
| 1.4 | Demonstrate work order procedures and parts ordering  |  |

## Benchmark 2: Diesel Engine

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Demonstrate engine removal and installation procedures |  |
| 2.2 | Inspect cooling and intake systems |  |
| 2.3 | Disassemble, clean and inspect engine components |  |
| 2.4 | Perform engine maintenance procedures |  |

## Benchmark 3: Hydraulic, Pneumatic and HVAC

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Describe safety aspects of fluid under pressure |  |
| 3.2 | Describe various pumps and applications  |  |
| 3.3 | Describe control and direction valves  |  |
| 3.4 | Describe safety devices in hydraulic and pneumatic systems  |  |
| 3.5 | Compare and contrast HVAC systems |  |
| 3.6 | Demonstrate performance test of HVAC systems and determine necessary action. |  |
| 3.7 | Diagnose heating system failures  |  |

## Benchmark 4: electrical

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Solder/repair electrical wiring and connections |  |
| 4.2 | Utilize schematics in electrical diagnosis |  |
| 4.3 | Research and explain basic diagnostic and troubleshooting  |  |
| 4.4 | Test, diagnose and repair electrical systems |  |
| 4.5 | Perform starting and charging tests |  |

## Benchmark 5: drivetrain

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate clutch removal, inspection, and adjustments |  |
| 5.2 | Remove, Install and service driveshaft components |  |
| 5.3 | Service and inspect manual, heavy duty automatic and CVT transmissions  |  |
| 5.4 | Service and inspect final drives and axle assemblies |  |

## Benchmark 6: brakes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Perform brake inspection |  |
| 6.2 | Repair and/or replace hoses, fittings, and lines |  |
| 6.3 | Replace brake shoes, pad, and associated assemblies |  |
| 6.4 | Replace brake chamber and service valves |  |

## Benchmark 7: Suspension and Steering

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Demonstrate knowledge of component replacement |  |
| 7.2 | Dismount, inspect, and repair wheels assemblies |  |
| 7.3 | Perform a pre-alignment inspection |  |
| 7.4 | Inspect and repair spring and pneumatic suspension components  |  |

## Benchmark 8: Welding, Cutting and Heating

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Explain the physical processes of MIG welding |  |
| 8.2 | Demonstrate Mig welding in flat position |  |
| 8.3 | Demonstrate using heat for assembly and disassembly of fit components  |  |

## Benchmark 9: Personal Skill and Employability

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Describe communication skills and process |  |
| 9.2 | Basic interview skills |  |
| 9.3 | Resume and job seeking skill |  |
| 9.4 | Describe importance of having written and verbal communication skills |  |

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

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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