# General Service III Course No. 40154 Credit: 1.0

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

Pathways and CIP Codes:Mobile Equipment Maintenance (47.9999) - Technology Strand I

Course Description: An advanced, comprehensive, **application level** course that provides students opportunities to perform inspection, diagnosis and repair of automobiles and light-duty trucks. May include Work-Based Learning (WBL) opportunities. (Prerequisite: General Service II.)

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: 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 | Utilize service information in automotive repair procedures. |  |
| 1.4 | Evaluate shop environment for proper safety procedures. |  |
| 1.5 | Demonstrate fastener usage and repair. |  |
| 1.6 | Discuss operations and safety of SRS systems. |  |
| 1.7 | Utilize safety precautions in servicing of high voltage power systems. |  |
| 1.8 | Locate and utilize technical service bulletins. |  |

## Benchmark 2: Engine Repair

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Remove and replace cooling system components. |  |
| 2.2 | Perform engine diagnostic tests. |  |
| 2.3 | Utilize precision measuring instruments in testing and diagnostic procedures. |  |
| 2.4 | Determine necessary action for engine components after disassembly and cleaning. |  |
| 2.5 | Change engine oil and filter. |  |
| 2.6 | Change fuel filter. |  |

## Benchmark 3: Drive Train

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Remove and replace CV shafts. |  |
| 3.2 | Remove and replace u-joints. |  |
| 3.3 | Inspect 4WD/AWD transfer case and determine appropriate function. |  |

## Benchmark 4: Suspension and Steering

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Perform a pre-alignment inspection. |  |
| 4.2 | Properly set-up alignment equipment and demonstrate understanding of proper operation. |  |
| 4.3 | Demonstrate knowledge and proper adjustment procedures for 4-wheel alignment techniques. |  |

## Benchmark 5: Brakes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate knowledge of ABS brake principles. |  |
| 5.2 | Replace brake pads and shoes and associated assemblies. |  |
| 5.3 | Service rotors and drums according to manufacturer’s specs. |  |
| 5.4 | Inspect, diagnose, and repair caliper and wheel cylinder assemblies. |  |
| 5.5 | Inspect, diagnose and repair master cylinder and power assist brake systems. |  |
| 5.6 | Inspect and service parking brake. |  |
| 5.7 | Discuss and compare/contrast operational principles of traction control and accident avoidance systems. |  |
| 5.8 | Analyze brake stop light function and determine necessary action. |  |
| 5.9 | Replace wheel hub and bearing assemblies. |  |

## Benchmark 6: Electrical Systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Replace and aim headlights and bulbs. |  |
| 6.2 | Diagnose repair needs for starters, relays, and solenoids. |  |
| 6.3 | Maintain or restore electronic memory functions. |  |

## Benchmark 7: HVAC

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Demonstrate proper refrigerant identification and recovery procedures. |  |
| 7.2 | Conduct performance tests of HVAC system and determine necessary action. |  |
| 7.3 | Perform leak test. |  |
| 7.4 | Remove and replace HVAC components. |  |
| 7.5 | Inspect and recharge HVAC system with refrigerant. |  |
| 7.6 | Perform AC system evacuation. |  |
| 7.7 | Inspect, diagnose, and repair air conditioner compressor and clutch. |  |
| 7.8 | Inspect, diagnose, and repair electrical HVAC control circuits. |  |
| 7.9 | Diagnose heating system malfunctions. |  |
| 7.10 | Service heater control system. |  |

## Benchmark 8: Engine Performance

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Explain the basic operating principles of ignition and fuel systems. |  |
| 8.2 | Diagnose ignition and fuel system for proper operation. |  |
| 8.3 | Identify basic principles of electronic engine management. |  |
| 8.4 | Identify basic diagnostic steps for engine control systems. |  |
| 8.5 | Perform engine scan test. |  |
| 8.6 | Interpret scan data and trouble codes. |  |
| 8.7 | Perform operational tests of engine sensors and control units. |  |
| 8.8 | Demonstrate knowledge of emissions system. |  |
| 8.9 | Perform emission system diagnostic procedures and identify components. |  |
| 8.10 | Perform engine mechanical diagnostic procedures. |  |
| 8.11 | Perform diagnostic tests of fuel delivery system and identify components. |  |
| 8.12 | Diagnose engine temperature related concerns and identify components. |  |
| 8.13 | Remove and replace thermostat and gasket. |  |
| 8.14 | Diagnose air intake and exhaust systems and identify components. |  |

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

Instructor Signature:

For more information, contact:

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