# General Service II Course No. 40152 Credit: 1.0

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

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

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 automotive and light truck service. (Prerequisite: General Service 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: 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 & retrieve sources of service information. |  |
| 1.4 | Demonstrate proper handling of chemicals used in the automotive shop. |  |
| 1.5 | Utilize PPE (personal protective equipment) properly in all required shop areas. |  |
| 1.6 | Demonstrate proper handling and disposal of hazardous materials. |  |

## Benchmark 2: Engine Repair

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Demonstrate engine removal and installation procedures. |  |
| 2.2 | Inspect cooling system components. |  |
| 2.3 | Disassemble, clean, and inspect engine components. |  |
| 2.4 | Perform engine diagnostic tests. |  |
| 2.5 | Perform engine maintenance procedures. |  |

## Benchmark 3: Drive Train

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Perform fluid service on transmissions and axles. |  |
| 3.2 | Demonstrate drive shaft removal and installation. |  |
| 3.3 | Service u-joints. |  |
| 3.4 | Inspect and service CV joint equipped drivelines. |  |
| 3.5 | Research and differentiate between four-wheel drive and AWD operation. |  |
| 3.6 | Research and differentiate between FWD and RWD. |  |
| 3.7 | Research and discuss clutch operation and service. |  |

## Benchmark 4: Suspension and Steering

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Demonstrate knowledge of steering and suspensions. |  |
| 4.2 | Inspect and replace steering fluid. |  |
| 4.3 | Inspect system for leaks and determine necessary action. |  |
| 4.4 | Demonstrate knowledge of component replacement. |  |
| 4.5 | Perform a pre-alignment inspection. |  |
| 4.6 | Demonstrate knowledge of principles of steering geometry. |  |
| 4.7 | Rotate tires according to manufacturer’s recommendation. |  |
| 4.8 | Dismount, inspect, and repair wheels and tires. |  |
| 4.9 | Balance wheel/tire assembly. |  |
| 4.10 | Demonstrate working knowledge of proper wheel torque. |  |
| 4.11 | Demonstrate proper service of tire pressure monitoring (TPM) systems. |  |

## Benchmark 5: Brakes

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate knowledge of brake principles. |  |
| 5.2 | Inspect and service brake fluid. |  |
| 5.3 | Demonstrate brake system bleeding procedures. |  |
| 5.4 | Repair and/or replace hoses, fittings, and lines. |  |
| 5.5 | Replace brake pads, shoes, and associated assemblies. |  |
| 5.6 | Service rotors and drums according to manufacturer’s specs. |  |
| 5.7 | Inspect caliper and wheel cylinder assemblies. |  |
| 5.8 | Service wheel hub and/or bearing assemblies. |  |
| 5.9 | Perform operational brake inspection. |  |

## Benchmark 6: Electrical Systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Demonstrate knowledge of electrical principles. |  |
| 6.2 | Solder/repair electrical wiring and connections. |  |
| 6.3 | Utilize schematics in electrical diagnoses. |  |
| 6.4 | Research and explain basic diagnostic and troubleshooting processes. |  |
| 6.5 | Perform starting and charging system tests. |  |
| 6.6 | Demonstrate the proper usage of a test light and DVOM. |  |
| 6.7 | Demonstrate battery service. |  |
| 6.8 | Test, diagnose, and repair electrical systems. |  |

## Benchmark 7: HVAC

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Compare and Contrast HVAC systems. |  |
| 7.2 | Demonstrate proper refrigerant identification and recovery procedures ; conduct performance tests of HVAC system and determine necessary action. |  |

## Benchmark 8: Engine Performance

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Perform engine scan tests ; interpret scan data and trouble codes. |  |
| 8.2 | Perform emissions testing. |  |
| 8.3 | Perform engine diagnostic procedures. |  |
| 8.4 | Discuss and compare/contrast fuel systems. |  |
| 8.5 | Diagnose problems with intake and exhaust systems. |  |

## Benchmark 9: Alternative Energy

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Research and compare/contrast basic alternative power systems. |  |

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



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.