

# COURSE SYLLABUS

## Maintenance and Light Repair Section B

**Program:** 2014-2015 Automotive Technology

**KY Tech Course Name:** Maintenance and Light Repair and Lab Section B

**Teacher:** Mr. Kyle Sward

**Contact Information:** kyle.sward@clark.kyschools.us

**Prerequisites:** MLR A

**High School Credits:** .5 Lab/.5 Classroom

**KCTCS Course Numbers  
or Articulated Credit**

AUT 152-153
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### **Course Description:**

This course will provide the student the opportunity to gain the technical skills and develop the workplace competencies necessary for an entry-level position as a Maintenance and Light Repair Technician. The course will cover safety, theory and principles related to the design, operation, and servicing of automotive systems. Topics include entry level Suspension and Steering and Brakes.

### **Objectives:**

See Attached Task List.

### **Materials Used:**

Textbook – Modern Automotive Technology

Research Software – All Data, Identifix

Training Software – Today's Class.

Magazines – Motor Magazine

#### **Grading Scale**

A 100-90

B 89-80

C 79-70

D 69-60

F 59-0

I Incomplete

#### **Grading Criteria**

20% Class work/ Quizzes

25% Shop Work

40% Participation

15% Tests

\*Courses with grades of less than a "C" will not count toward a certificate or be eligible for dual credit.

### **Procedures for Makeup Work/Tests:**

A student will be permitted to make up tests and work not completed provided the student has an excused absence for missing the assignments. Excused absences must be approved by the high school, and posted in Infinite Campus.

### **Attendance Policy/Withdrawal Policy:**

There is a lot of information to be presented. Students are expected to attend and be punctual. In the event the student misses all or part of a class he or she will be expected to make up that days assignment with in one week. Withdrawals from class will be handled by the High School. Unless I am notified by the High School, you are still enrolled, and responsible for your assignments.

### **Supplies**

1. Bring pencils/pens and paper to class. There will be written assignments and tests given. You need to be prepared.
2. One pair of safety glasses will be issued to the student the first week of school. If they are lost or missing, the student is responsible for providing another pair. Without the proper eye protection, you will not be able to work in the lab. This is an absolute. No exceptions will be allowed. If the student fails to have safety glasses, they will loose one percentage point of their grade for every day that they do not bring their glasses.

### **Class expectations/Rules**

1. Enter room quietly.
2. Do not bring drinks or snacks into classroom.
3. Wear proper clothing and safety equipment.
4. Obey all safety rules and regulations.
5. Obey all school rules and policies.
6. Do not cheat, plagiarize or assist another in cheating.
7. No horseplay
8. Make sure the shop/lab is cleaned and tools are put away before leaving. If we can't find the tools, we can't work in the shop. If the shop is cluttered, we cannot work there safely.
9. Watch your language! You cannot use foul and offensive language in the workplace; therefore, you cannot use it here!
10. Keep your safety glasses on while working in the **lab**! Keep them on and wear them properly!
11. Be courteous to the teacher and fellow students.
12. You must have a minimum of a 2.0 GPA and at least a 75% in my class to bring your car in to work on.

**Course Outline:**

Subject areas that will be covered are as follows:

\*Suspension and Steering

\*Brake Systems

There will be a test and research questions over each section listed above, and a final exam covering all areas.

**Accommodations for Individuals with Disabilities and Equal Employment Opportunities (EEO)**

The Department of Education and the Office of Career and Technical Education do not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in educational services and/or employment. The Education Cabinet provides, upon request, reasonable accommodations including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in all services, programs and activities. To request materials in an alternative format, contact the Civil Rights Compliance Coordinator in OCTE. Persons with hearing-and speech- impairments can contact the agency by using the Kentucky Relay Service, a toll-free telecommunication device for the deaf (TDD). For voice to TDD, call 1-800—648-6057. For TDD to voice, call 1-800-648-6056.

The Office of Career and Technical Education does not discriminate on the basis of race, color, national origin, sex, disability, age, marital status, or religion in admission to education programs, activities, and employment practices in accordance with Title VI of the Civil Rights Act of 1964, Title VII of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, Section 504 of the Rehabilitation Act of 1973 (revised 1992), and the Americans with Disabilities Act of 1990 and shall provide, upon request by a qualified disabled individual, reasonable accommodations including auxiliary aids and services necessary to afford individuals with a disability an equal opportunity to participate.

# **Automotive Maintenance and Light Repair Section B:**

## **Required Supplemental Tasks**

Identify general shop safety rules and procedures.

Utilize safe procedures for handling of tools and equipment.

Identify and use proper placement of floor jacks and jack stands.

Identify and use proper procedures for safe lift operation.

Utilize proper ventilation procedures for working within the lab/shop area.

Identify marked safety areas.

Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment.

Identify the location and use of eye wash stations.

Identify the location of the posted evacuation routes.

Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities.

Identify and wear appropriate clothing for lab/shop activities.

Secure hair and jewelry for lab/shop activities.

Demonstrate awareness of the safety aspects of supplemental restraint systems (SRS), electronic brake control systems, and hybrid vehicle high voltage circuits.

Demonstrate awareness of the safety aspects of high voltage circuits (such as high intensity discharge (HID) lamps, ignition systems, injection systems, etc.).

Locate and demonstrate knowledge of material safety data sheets (MSDS).

Identify tools and their usage in automotive applications.

Identify standard and metric designation.

Demonstrate safe handling and use of appropriate tools.

Demonstrate proper cleaning, storage, and maintenance of tools and equipment.

Demonstrate proper use of precision measuring tools (i.e. micrometer, dial-indicator, dial-caliper).

Identify information needed and the service requested on a repair order.

Identify purpose and demonstrate proper use of fender covers, mats.

Demonstrate use of the three C's (concern, cause, and correction).

Review vehicle service history.

Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.

Ensure vehicle is prepared to return to customer per school/company policy (floor mats, steering wheel cover, etc.).

## **SUSPENSION AND STEERING**

### **Related Suspension and Steering Service**

Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.

P-1

Determine proper power steering fluid type; inspect fluid level and condition.

P-1

Flush, fill, and bleed power steering system.

P-2

Inspect for power steering fluid leakage; determine necessary action.

P-1

Remove, inspect, replace, and adjust power steering pump drive belt.

P-1

Inspect and replace power steering hoses and fittings.

P-2

Replace power steering pump filter(s).

P-2

Inspect pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and

P-1

steering linkage damper.

Inspect tie rod ends (sockets), tie rod sleeves, and clamps.	P-1
Inspect upper and lower control arms, bushings, and shafts.	P-1
Inspect and replace rebound and jounce bumpers.	P-1
Inspect track bar, strut rods/radius arms, and related mounts and bushings.	P-1
Inspect upper and lower ball joints (with or without wear indicators).	P-1
Inspect suspension system coil springs and spring insulators (silencers).	P-1
Inspect suspension system torsion bars and mounts.	P-1
Inspect and replace front stabilizer bar (sway bar) bushings, brackets, and links.	P-1
Inspect strut cartridge or assembly.	P-1
Inspect front strut bearing and mount.	P-1
Inspect rear suspension system lateral links/arms (track bars), control (trailing) arms.	P-1
Inspect rear suspension system leaf spring(s), spring insulators (silencers), shackles, brackets, bushings, center pins/bolts, and mounts.	P-1
Inspect, remove, and replace shock absorbers; inspect mounts and bushings.	P-1
Inspect electric power-assisted steering.	P-3
Identify hybrid vehicle power steering system electrical circuits and safety precautions.	P-2
Describe the function of the power steering pressure switch.	P-3

### **Wheel Alignment**

Perform prealignment inspection and measure vehicle ride height; determine necessary action. P-1

### **Wheels and Tires**

Inspect tire condition; identify tire wear patterns; check for correct size and application (load and speed ratings) and adjust air pressure; determine necessary action. P-1

Rotate tires according to manufacturer's recommendations. P-1

Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic). P-1

Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor. P-2

Inspect tire and wheel assembly for air loss; perform necessary action. P-1

Repair tire using internal patch. P-1

Identify and test tire pressure monitoring systems (indirect and direct) for operation; verify operation of instrument panel lamps. P-2

Demonstrate knowledge of steps required to remove and replace sensors in a tire pressure monitoring system. P-2

## **BRAKES**

### **General**

Research applicable vehicle and service information, vehicle service history, service precautions, and technical service bulletins. P-1

Describe procedure for performing a road test to check brake system operation, including an anti-lock brake system (ABS). P-1

Install Wheel and Torque Lug Nuts P1

### **Hydraulic System**

Measure brake pedal height, travel, and free play (as applicable); determine necessary action. P-1

Check master cylinder for external leaks and proper operation. P-1

- Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, wear, loose fittings and supports; determine necessary action. P-1
- Select, handle, store, and fill brake fluids to proper level. P-1
- Identify components of brake warning light system. P-3
- Bleed and/or flush brake system. P-1
- Test brake fluid for contamination. P-1



## STUDENT EXPECTATIONS

I realize the following expectations are required of me in order to grow and become prepared for tougher classes and build towards the college/career level. I realize if I choose not to carry out these expectations: I could possibly fail or be removed from this class.

1. **Cell Phones:** When I enter the room I will power my cell phone off and put it into my backpack. If I am caught with it out in class, the phone will be taken and a parent will have to pick the phone up after school.

2. **This classroom is for learning:** As I enter the classroom, I will sit down and begin to review material that is presented to me in the form of a bell ringer. I will not for any reason (unless called by GRC to sign out) leave or ask to leave my class at the Clark Co. Area Tech. Center.

3. **Follow Safety Guidelines:** I will not horseplay in the classroom or lab. I will not bring food or drinks into the classroom or lab.

4. **Have all Materials:** I will bring pencil/pen, paper, safety glasses, closed toe shoes and protective work clothes to class every day.

5. **Respect:** I will show respect to my instructor, peers, and myself at all times. I will not use any vulgar, foul, or obscene language at any time. I will respect the teacher.

6. **Protect the classroom:** I will take care of equipment that belongs to this classroom. I realize this classroom and lab are open for me to study and learn. It is my responsibility to see that it stays open.

7. **Open Mind:** I will not let fear of a new way to do something or information keep me from trying.

8. **No Bell:** My instructor will dismiss the class, not the bell. I will not put my materials away until my instructor tells me to do so and I will not line up at the door.

9. **Bathroom:** I will have only 10 bathroom passes for the semester and I will follow the 10/10 rule.

By signing below I verify that I have read the syllabus/student expectations for automotive technology and understand all that is included.

Please sign below and return to Mr. Sward

Student's signature \_\_\_\_\_ Date \_\_\_\_\_

Parent/Guardian signature \_\_\_\_\_ Date \_\_\_\_\_