

Course Information

Semester & Year: Fall 2021

Course ID & Section #: AT-10-E1621

Instructor's name: Ernest Shull

Day/Time of required meetings: Monday & Wednesday 8:15 AM to 12:35 PM

Location: AT-128

Course units: 4

Instructor Contact Information

Office location AT-129A

Office hours: Monday & Wednesday 1:00PM to 2:00PM

Phone number: 707-476-4221

Email address: Ernest-Shull@redwoods.edu

Catalog Description

The Maintenance and Light Repair (MLR) certificate is part of the Automotive Technology Program. It is designed as an entry level certificate, recognizing the knowledge and skills industry has identified as required for employment for entry level technicians. The development of this certificate will provide a pathway of stackable credentials leading to the AS Automotive Technology.

Course Student Learning Outcomes *(from course outline of record)*

1. Research and perform routine maintenance on a modern vehicle.
2. Exhibit proficiency with precise measurement instruments.
3. Perform routine inspections and repairs on a modern vehicle.

Prerequisites/co-requisites/ recommended preparation

none

Accessibility

College of the Redwoods is committed to making reasonable accommodations for qualified students with disabilities. If you have a disability or believe you might benefit from disability-related services and accommodations, please contact your instructor or [Disability Services and Programs for Students](#) (DSPS). Students may make requests for alternative media by contacting DSPS based on their campus location:

- Eureka: 707-476-4280, student services building, 1st floor
- Del Norte: 707-465-2324, main building near library
- Klamath-Trinity: 530-625-4821 Ext 103

If you are taking online classes DSPS will email approved accommodations for distance education classes to your instructor. In the case of face-to-face instruction, please present your written accommodation request to your instructor at least one week before the needed accommodation so that necessary arrangements can be made. Last minute arrangements or post-test adjustments usually cannot be accommodated.

Student Support

Good information and clear communication about your needs will help you be successful. Please let your instructor know about any specific challenges or technology limitations that might affect your participation in class. College of the Redwoods wants every student to be successful.

Evaluation & Grading Policy

[Should include info such as final grade calculations, rubrics, late assignment policy, and other grading practices]

Admissions deadlines & enrollment policies

Fall 2021 Dates

- *Classes begin: 8/21/21*
- *Last day to add a class: 8/27/21*
- *Last day to drop without a W and receive a refund: 9/03/21*
- *Labor Day Holiday (all campuses closed): 09/06/21*
- *Census date: 9/07/21 or 20% into class duration*
- *Last day to petition to graduate or apply for certificate: 10/28/21*
- *Last day for student-initiated W (no refund): 10/29/21*
- *Last day for faculty-initiated W (no refund): 10/29/21*
- *Veteran's Day (all campuses closed): 11/11/21*
- *Fall Break (no classes): 11/22/21 – 11/26/21*
- *Thanksgiving Holiday (all campuses closed): 11/24/21 – 11/26/21*
- *Final examinations: 12/11/21 – 12/17/21*
- *Last day to petition to file P/NP option: 12/17/21*
- *Semester ends: 12/17/21*
- *Grades available for transcript release: approximately 01/07/22*

Academic dishonesty

In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases, where the instructor determines that a student has demonstrated academic dishonesty, the student may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct ([AP 5500](#)) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the [College Catalog](#) and on the [College of the Redwoods website](#).

Disruptive behavior

Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process, a disruptive student may be temporarily removed from class. In addition, the student may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct ([AP 5500](#)) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the [College Catalog](#) and on the [College of the Redwoods website](#).

Inclusive Language in the Classroom

College of the Redwoods aspires to create a learning environment in which all people feel comfortable in contributing their perspectives to classroom discussions. It therefore encourages instructors and students to use language that is inclusive and respectful.

Setting Your Preferred Name in Canvas

Students have the ability to have an alternate first name and pronouns to appear in Canvas. Contact [Admissions & Records](#) to request a change to your preferred first name and pronoun. Your Preferred Name will only be listed in Canvas. This does not change your legal name in our records. See the [Student Information Update form](#).

Canvas Information

If using Canvas, include navigation instructions, tech support information, what Canvas is used for, and your expectation for how regularly students should check Canvas for your class.

Log into Canvas at <https://redwoods.instructure.com>

Password is your 8 digit birth date

For tech help, email its@redwoods.edu or call 707-476-4160

Canvas Help for students: <https://webapps.redwoods.edu/tutorial/>

Canvas online orientation workshop: [Canvas Student Orientation Course \(instructure.com\)](#)

Community College Student Health and Wellness

Resources, tools, and trainings regarding health, mental health, wellness, basic needs and more designed for California community college students, faculty and staff are available on the California Community Colleges [Health & Wellness website](#).

[Wellness Central](#) is a free online health and wellness resource that is available 24/7 in your space at your pace.

Students seeking to request a counseling appointment for academic advising or general counseling can email counseling@redwoods.edu.

Emergency procedures / Everbridge

College of the Redwoods has implemented an emergency alert system called Everbridge. In the event of an emergency on campus you will receive an alert through your personal email and/or phones. Registration is not necessary in order to receive emergency alerts. Check to make sure your contact information is up-to-date by logging into WebAdvisor <https://webadvisor.redwoods.edu> and selecting 'Students' then 'Academic Profile' then 'Current Information Update.'

Please contact Public Safety at 707-476-4112 or security@redwoods.edu if you have any questions. For more information see the [Redwoods Public Safety Page](#).

In an emergency that requires an evacuation of the building anywhere in the District:

- Be aware of all marked exits from your area and building
- Once outside, move to the nearest evacuation point outside your building
- Keep streets and walkways clear for emergency vehicles and personnel

Do not leave campus, unless it has been deemed safe by the campus authorities.

Del Norte Campus Emergency Procedures

Please review the [Crescent City campus emergency map](#) for campus evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information, see the [Redwoods Public Safety Page](#).

Eureka Campus Emergency Procedures

Please review the [campus emergency map](#) for evacuation sites, including the closest site to this classroom (posted by the exit of each room). For more information on Public Safety go to the [Redwoods Public Safety Page](#). It is the responsibility of College of the Redwoods to protect life and property from the effects of emergencies within its own jurisdiction.

In the event of an emergency:

1. Evaluate the impact the emergency has on your activity/operation and take appropriate action.
2. Dial 911, to notify local agency support such as law enforcement or fire services.
3. Notify Public Safety 707-476-4111 and inform them of the situation, with as much relevant information as possible.
4. Public Safety shall relay threat information, warnings, and alerts through the Everbridge emergency alert system, Public address system, and when possible, updates on the college website, to ensure the school community is notified.
5. Follow established procedures for the specific emergency as outlined in the College of the Redwoods Emergency Procedure Booklet, (evacuation to a safe zone, shelter in place, lockdown, assist others if possible, cooperate with First Responders, etc.).
6. If safe to do so, notify key administrators, departments, and personnel.
7. Do not leave campus, unless it is necessary to preserve life and/or has been deemed safe by the person in command.

Student Support Services

The following online resources are available to support your success as a student:

- [CR-Online](#) (Comprehensive information for online students)
- [Library Articles & Databases](#)
- [Canvas help and tutorials](#)
- [Online Student Handbook](#)

[Counseling](#) offers assistance to students in need of professional counseling services such as crisis counseling.

Learning Resource Center includes the following resources for students

- [Academic Support Center](#) for instructional support, tutoring, learning resources, and proctored exams. Includes the Math Lab & Drop-in Writing Center
- [Library Services](#) to promote information literacy and provide organized information resources.
- [Multicultural & Diversity Center](#)

Special programs are also available for eligible students include

- [Extended Opportunity Programs & Services \(EOPS\)](#) provides services to eligible income disadvantaged students including: textbook award, career academic and personal counseling, school supplies, transportation assistance, tutoring, laptop, calculator and textbook loans, priority registration, graduation cap and gown, workshops, and more!
- The TRiO Student Success Program provides eligible students with a variety of services including trips to 4-year universities, career assessments, and peer mentoring. Students can apply for the program in [Eureka](#) or in [Del Norte](#)

- The [Veteran's Resource Center](#) supports and facilitates academic success for Active Duty Military, Veterans and Dependents attending CR through relational advising, mentorship, transitional assistance, and coordination of military and Veteran-specific resources.
- Klamath-Trinity students can contact the CR KT Office for specific information about student support services at 530-625-4821

AT – 10 Introduction to Automotive Technology

Course Description

The Maintenance and Light Repair (MLR) certificate is part of the Automotive Technology Program. It is designed as an entry level certificate, recognizing the knowledge and skills industry has identified as required for employment for entry level technicians. The development of this certificate will provide a pathway of stackable credentials leading to the AS Automotive Technology.

Text and References

Automotive Maintenance & Light Repair, 2nd Edition ,
Rob Thompson, Cengage Learning, ISBN 10: 1337564397

Student Contribution

Each student will spend time reading assigned material, preparing reports, and studying for tests as necessary outside of normal class time. Attendance is critical in this course. The student will be expected to participate in all lectures and lab activities involving this course. The student will be responsible for all material presented in this course regardless of class attendance. To get the maximum benefit from the ASE Certified training offered students should come to class prepared, be attentive to all instruction, maintain a positive attitude, and actively participate in all lab activities. Students will be expected to adhere to College of the Redwoods Code of Conduct and Discipline at all times. Policy prohibits cell phone and other personal electronic devices during class, please turn them off for class. College of the Redwoods complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request at least one week before the first test so that necessary arrangements can be made. No last-minute arrangements or post- test adjustments will be made. If you are a student with a disability or think that you can benefit from a disability related service, please let me know how I can support you or contact Disabled Student Programs and Services at 476-4280. The student code of conduct is available on the College of the Redwoods website at: <http://www.redwoods.edu/board/Board-Policies/Chapter-5- Student-Services>

College Level Rigor

This is defined as a minimum of three hours of work per week per unit of credit, including class time. This is pro-rated for short-term and lab classes. College level rigor also requires that the scope and intensity for the course requires the student to study outside of class time.

Supplies

1. Work attire is recommended. Supply your own coveralls, shop coat or work pants and shirt.

Course Requirements

1. Textbook assignments – Read assigned chapter prior to coming to class.
2. Each student is responsible for cleaning their work area.
3. Each student is required to have their own safety glasses.
4. Safety glasses are required to be worn in the lab in designated areas at all times.
5. No student parking allowed in the automotive compound.

Degree/Certificate

An Associate of Science Degree in Automotive Technology is available as well as Certificate of Achievement and Certificate of Completion consult college catalog for specific requirements and/or contact Counseling/Advising at 476-4150 to develop a student education plan. Note: It is the student's responsibility to submit the proper FORMS to the Admissions Office in order to petition for AT degree's and certificate's required for graduation. Consult your course catalog for important deadlines or the Admissions Office for additional information.

Automotive Work Experience:

Additional units are available for working in the field. Contact the Work Experience Coordinator at 476-4341

Course Evaluation

Your performance objectives, exams, and laboratory activities will be translated to points and points to grades. There are 1000 possible points and the following distribution will guarantee the following:

1000 - 900 = A

899 - 800 = B

799 - 700 = C

699 - 600 = D

599 - 500 = F

Attendance

The college assumes that students will attend every session of a class for which they are registered. If, however, attendance is irregular, students may be dropped from a particular class. Excessive absence is defined as a total of absences which equal two weeks in a 16 week semester, for a class meeting twice per week that would equate to 4 absences. For attendance purpose, the college regards a laboratory session as the equivalent of one class meeting.

Veterans and financial aid recipients should remember that should they drop below the number of units required of them by the Veterans Administration or financial aid office for any reason during the semester, including being dropped from a class for excessive absences, they will lose part of the government assistance allowances and may be required to repay funds already disbursed.

In any event if an attendance problem does develop, work with the instructor to resolve it. The purpose here is to see what we can do together to keep you in the class in order to help you master the course content.

Summary

Please review this course information sheet carefully. If you have any questions, ask them in my class since others might have similar problems. If necessary, discuss this with me in my office. Good Luck!! I hope this will be a good semester for all of us.

Get The Most Out of This Program

1. This program belongs to YOU and its success rests largely with YOU.
2. Enter into the discussion ENTHUSIASTICALLY.
3. GIVE FREELY of your experience.
4. CONFINE your discussion to the problem.
5. Say what you THINK
6. Only ONE PERSON should talk at a time (avoid private conversation while someone else is speaking).
7. LISTEN ALERTLY to the discussion.
8. BE PATIENT with other members.
9. APPRECIATE the other's fellow's point of view.

10. Be PROMPT and REGULAR in attendance

DEFINITION OF PLAGIARISM: The unauthorized use of the language and thoughts of another author and the representation of them as one's own.

Tips for Students –of All Ages

Recently ASE-Certified master technicians were surveyed for their advice to students who want to become automotive service professional. Although the survey was especially for students, the tips that were suggested are applicable to all automotive technicians, from the newest to the most experienced. The following is a compilation of the responses:

- 1 Education, Education, Education – Continue your education and develop strong math, reading, study skills and computer skills. A strong background in electronics is essential.
- 2 Take advantage of on-the-job training, co-op or apprenticeship opportunities – Get all the training you can and start in a work environment that caters to service and excellence.
- 3 Keep abreast of new technology – Make a commitment to life-long learning. There is a constant change in technology so take advantage of additional training whenever it is available.
- 4 Learn a systems approach – Vehicles today are complex so it is necessary to understand the interaction of electrical and mechanical components within the total system. Learn how to understand the whole system and you can apply this knowledge across the spectrum of vehicles.
- 5 Develop good communication skills – learn not only the professional and technical skills but also communication and people skills. Your credibility is linked to your perceived competence.
- 6 Keep a positive attitude – Develop a positive outlook so that you perform proper repairs. Apply yourself – you get exactly as much out of your job as you put into it.
- 7 Take pride in your work – Work on every car as if it were your own. Whatever you do –do it well, it's your signature.
- 8 Be honest and ethical – Stay focused on what is most important, practice good work ethics, be dependable and honest, and fix it right the first time.
- 9 Cultivate professionalism in yourself and others – Act professionally, take pride in your appearance as well as in the shop area. Be a positive role model for others. Show up for work every day and always be on time.
- 10 Become ASE certified – Certification gives you an edge when you are seeking employment. Your confidence, sense of self-worth, and ability to get a job almost anywhere are improved once you become certified. ASE certification shows your employer that you have proven your technical expertise and that you are among the group of the very best technicians.

Learning Outcomes

The college strives for continual improvement in instruction through assessment of learning outcomes. These outcomes are assessed in various ways throughout the course and upon completion of the program. Please participate to the fullest of your ability in this effort to make this course and this program successful.

Program Learning Outcomes

1. Successfully perform the entry level skills and tasks required for service and repair of automotive systems.
2. Locate industry-standard diagnostic information to localize complex automotive problems.
3. Perform common service and repair tasks identified by Automotive Service Excellence (ASE).

Course Learning Outcomes

1. Research and perform routine maintenance on a modern vehicle.
2. Exhibit proficiency with precise measurement instruments.
3. Perform routine inspections and repairs on a modern vehicle.

Course Objectives

Upon successful completion of this course the student should be able to perform the following tasks:

I. ENGINE REPAIR

A. General

1. Research vehicle service information, including fluid type, vehicle service history, service precautions, and technical service bulletins. P-1
2. Verify operation of the instrument panel engine warning indicators. P-1
3. Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action. P-1
4. Perform common fastener and thread repair, to include: remove broken bolt, restore internal and external threads, and repair internal threads with thread insert. P-1
5. Identify service precautions related to service of the internal combustion engine of a hybrid vehicle. P-2

I. ENGINE REPAIR

B. Cylinder Head and Valve Train

1. Identify components of the cylinder head and valve train. P-1

I. ENGINE REPAIR

C. Lubrication and Cooling Systems

1. Perform cooling system pressure and dye tests to identify leaks; check coolant condition and level; inspect and test radiator, pressure cap, coolant recovery tank, heater core, and galley plugs; determine necessary action. P-1
2. Inspect, replace, and/or adjust drive belts, tensioner, and pulleys; check pulley and belt alignment. P-1
3. Inspect and test coolant; drain and recover coolant; flush and refill cooling system; use proper fluid type per manufacturer specification; bleed air as required. P-1
4. Perform engine oil and filter change; use proper fluid type per manufacturer specification; reset maintenance reminder as required. P-1
5. Identify components of the lubrication and cooling systems. P-1

I. AUTOMATIC TRANSMISSION AND TRANSAXLE

A. General

1. Research vehicle service information including fluid type, vehicle service history, service

precautions, and technical service bulletins.P-1

2. Check fluid level in a transmission or a transaxle equipped with a dip-stick.P-1
3. Check fluid level in a transmission or a transaxle not equipped with a dip-stick. P-1
4. Check transmission fluid condition; check for leaks.P-2
5. Identify drive train components and configuration. P-1

II. AUTOMATIC TRANSMISSION AND TRANSAXLE

A. In-Vehicle Transmission/Transaxle

1. Inspect for leakage at external seals, gaskets, and bushings. P-1
2. Inspect, replace and/or align power train mounts. P-2
3. Drain and replace fluid and filter(s); use proper fluid type per manufacturer specification. P-1

III. MANUAL DRIVETRAIN AND AXLES

A. General

1. Research vehicle service information including fluid type, vehicle service history, service precautions, and technical service bulletins. P-1
2. Drain and refill manual transmission/transaxle and final drive unit ;use proper fluid type per manufacturer specification. P-1
3. Check fluid condition; check for leaks.P-2
4. Identify manual drivetrain and axle components and configuration.P-1

III. MANUAL DRIVE TRAIN AND AXLES

B. Clutch

1. Check and adjust clutch master cylinder fluid level; use proper fluid type per manufacturer specification P-1
2. Check for hydraulic system leaks.P-1

III. MANUAL DRIVE TRAIN AND AXLES D.

1. Check for leaks at drive assembly and transfer case seals; check vents; check fluid level; use proper fluid type per manufacturer specification. P-2

III. MANUALDRIVETRAINANDAXLES

E. Differential Case Assembly

1. Clean and inspect differential case; check for leaks; inspect housing vent. P-1
2. Check and adjust differential case fluid level; use proper fluid type per manufacturer specification. P-1
3. Drain and refill differential housing. P-1
4. Inspect and replace drive axle wheel studs. P-1

IV. SUSPENSION AND STEERING SYSTEMS

A. General

1. Research vehicle service information including fluid type, vehicle service history, service precautions, and technical service bulletins. P-1
2. Identify suspension and steering system components and configurations. P-1

IV. SUSPENSION AND STEERING

B. Related Suspension and Steering Service

1. Inspect power steering fluid level and condition. P-1
2. Flush, fill, and bleed power steering system; use proper fluid type per manufacturer specification. P-2
3. Inspect for power steering fluid leakage. P-1
4. Inspect tie rod ends (sockets), tie rod sleeves, and clamps. P-1
5. Inspect, remove, and/or replace shock absorbers; inspect mounts and bushings. P-1
6. Identify hybrid vehicle power steering system electrical circuits and safety precautions. P-2

IV. SUSPENSION AND STEERING

D. Wheels and Tires

1. Inspect tire condition; identify tire wear patterns; check for correct tire size, application (load and speed ratings), and air pressure as listed on the tire information placard/label. P-1
2. Rotate tires according to manufacturers' recommendations including vehicles equipped with tire pressure monitoring systems (TPMS). P-1
3. Inspect tire and wheel assembly for air loss; determine necessary action. P-1

I. BRAKES

A. General

1. Research vehicle service information including fluid type, vehicle service history, service precautions, and technical service bulletins. P-1
2. Install wheel and torque lug nuts. P-1
3. Identify brake system components and configuration. P-1

V. BRAKES

B. Hydraulic System

1. Check master cylinder for external leaks and proper operation. P-1
2. Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, wear, and loose fittings/supports. P-1
3. Select, handle, store, and fill brake fluids to proper level; use proper fluid type per manufacturer specification. P-1
4. Identify components of hydraulic brake warning light system. P-3
5. Bleed and/or flush brake system. P-1
6. Test brake fluid for contamination. P-1

V. BRAKES

A. Disc Brakes

1. Check brake pad wear indicator; determine necessary action. P-1

BRAKES

C. Power-Assist Units

1. Check brake pedal travel with, and without, engine running to verify proper power booster operation. P-2
2. Identify components of the brake power assist system (vacuum and hydraulic); check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster. P-1

BRAKES

D. Related Systems (i.e., Wheel Bearings, Parking Brakes, Electrical)

1. Check parking brake operation and parking brake indicator light system operation; determine necessary action. P-1
2. Check operation of brake stop light system. P-1

VI. ELECTRICAL/ELECTRONIC SYSTEMS

A. General

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

VI. ELECTRICAL/ELECTRONIC SYSTEMS

A. Battery Service

1. Perform battery state-of-charge test; determine necessary action. P-1
2. Inspect and clean battery; fill battery cells; check battery cables, connectors, clamps, and hold-downs. P-1
3. Jump-start vehicle using jumper cables and a booster battery or an auxiliary power supply. P-1
4. Identify safety precautions for high voltage systems on electric, hybrid-electric, and diesel vehicles. P-2
5. Identify hybrid vehicle auxiliary (12v) battery service, repair, and test procedures. P-2

VI. ELECTRICAL/ELECTRONIC SYSTEMS

B. Starting System

1. Remove and install starter in a vehicle. P-1

VI. ELECTRICAL/ELECTRONIC SYSTEMS

D. Charging System

1. Inspect, adjust, and/or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment. P-1
2. Remove, inspect, and/or replace generator (alternator). P-2

VI. ELECTRICAL/ELECTRONIC SYSTEMS

E. Lighting, Instrument Cluster, Driver Information, and Body Electrical Systems

1. Inspect interior and exterior lamps and sockets including headlights and auxiliary lights (fog lights/ driving lights); replace as needed. P-1
2. Aim headlights. P-2
3. Identify system voltage and safety precautions associated with high-intensity discharge headlights. P-2
4. Disable and enable supplemental restraint system (SRS); verify indicator lamp operation. P-1

5. Verify operation of instrument panel gauges and warning/indicator lights; reset maintenance indicators. P-1

6. Verify windshield wiper and washer operation; replace wiper blades. P-1

VII. HEATING, VENTILATION, AND AIR CONDITIONING(HVAC)

A. General

1. Research vehicle service information, including refrigerant/oil type, vehicle service history, service precautions, and technical service bulletins.P-1

2. Identify heating, ventilation and air conditioning (HVAC) components and configuration. P-1

VII. HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

B. Refrigeration System Components

1. Inspect and replace A/C compressor drive belts, pulleys, and tensioners; visually inspect A/C components for signs of leaks; determine necessary action.P-1

2. Identify hybrid vehicle A/C system electrical circuits and the service/safety precautions. P-2

3. Inspect A/C condenser for airflow restrictions; determine necessary action. P-1

VII. HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

C. Heating, Ventilation, and Engine CoolingSystems

1. Inspect engine cooling and heater systems hoses and pipes; determine necessary action. P-1

VII. HEATING, VENTILATION, AND AIR CONDITIONING(HVAC)

D. Operating Systems and Related Controls

1. Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; determine necessary action. P-1

2. Identify the source of A/C system odors. P-2 8

VIII. ENGINE PERFORMANCE

A. General

1. Research vehicle service information, including fluid type, vehicle service history, service precautions, and technical service bulletins. P-1

2. Remove and replace spark plugs; inspect secondary ignition components for wear and damage. P-1

VIII. ENGINE PERFORMANCE

B. Fuel, Air Induction, and Exhaust Systems

1. Replace fuel filter(s) where applicable. P-2
2. Inspect, service, or replace air filters, filter housings, and intake duct work. P-1
3. Inspect integrity of the exhaust manifold, exhaust pipes, muffler(s), catalytic converter(s), resonator(s), tail pipe(s), and heat shields; determine necessary action. P-1
4. Inspect condition of exhaust system hangers, brackets, clamps, and heat shields; determine necessary action. P-1
5. Check and refill diesel exhaust fluid (DEF). P-2

VIII. ENGINE PERFORMANCE

A. Emissions Control Systems

1. Inspect, test, and service positive crankcase ventilation (PCV) filter/breather, valve, tubes, orifices, and hoses; perform necessary action. P-2

IX. WORKPLACE SUCCESS SKILLS

1. Students will practice professionalism, effective communication and teamwork, punctuality, and safety procedures as would be expected in industry.

Course Grading System

Extra Credit

Each student may arrange with instructor to read and report on a topic related to AT 10 Introduction to Automotive Technology from a source other than the course text or the internet i.e. trade publications, library reference material, magazines, newspaper articles, etc... The report must be no less than one page typed and no longer than three pages. You must properly cite your references on a separate page. You may earn up to 50 points per report and you may turn in a maximum of 1 report per semester. Please inform the instructor and agree on a topic prior to doing this assignment.

Course Points

All Labs will contribute to 500 points towards your final grade.

Tests and Homework will contribute towards the other 500 Points.

There are a total of 1000 Points in this course.

| <i>Day</i> | <i>Theory</i> | <i>Lab</i> | <i>Assigned Reading</i> |
|------------|----------------------------|---|-------------------------|
| 8-23 | Overview | Shop Safety | Ch. 2, |
| 8-25 | Shop Basics Vehicle ID | Using Equipment Vehicle Info | Ch. 3 & 4 |
| 8-30 | Engine Principles | Engine Inspections | Ch. 22 & 23 |
| 9-1 | Engine Service | Engine Testing/ Test 1 Canvas | Ch. 24 |
| 9-6 | Labor Day | No Class | |
| 9-8 | Electrical Principles | ConsuLab/DMM | Ch. 17 |
| 9-13 | Vehicle Wiring | Using Wiring Diagrams | Ch. 18 |
| 9-15 | Electronic Service | Battery Service & Test | Ch. 19 |
| 9-20 | Starting & Charging | Charging Lab | Ch. 20 |
| 9-22 | Starting & Charging | Starting Lab | |
| 9-27 | Lighting & Electrical | Lighting Systems | Ch. 21 |
| 9-29 | Electrical Review | Electrical Review/ Test 2 Canvas | |
| 10-4 | Brake Principles | Brake Inspections | Ch. 10 & 11 |
| 10-6 | Drum Brakes | Drum Brakes | Ch. 12 & 13 |
| 10-11 | Disc Brakes | Disk Brakes | Ch. 14 & 15 |
| 10-13 | ABS ESC | Parking Brakes, Power Assist | Ch. 16 |
| 10-18 | Brakes Review | Brake Review/ Test 3 Canvas | |
| 10-20 | Wheels & Tires | Bearings & Tires | Ch. 5 |
| 10-25 | Suspension Systems | Suspension Inspections | Ch. 5 & 7 |
| 10-27 | Steering Systems | Steering Inspections | Ch. 8 & 9 |
| 11-1 | Suspension/Steering Review | Component R&R | |
| 11-3 | Scan Tools | Scan Tools/ Test 4 Canvas | |
| 11-8 | Drive Trains | Drive Train Inspections | Ch. 25 |
| 11-10 | Drive Train | Half-Shaft R&R | |
| 11-15 | Transmissions | Transmission Inspections | Ch. 26 |
| 11-17 | Transmissions | Fluid Replacement & Flushing | |
| 11-22 | Fall Break | No Class | |
| 11-24 | Fall Break | No Class | |
| 11-29 | HVAC Systems | HVAC Service/ Test 5 Canvas | Ch. 26 |
| 12-1 | Vehicle Oil Changes | LOF Service | |
| 12-6 | Vehicle Maintenance | Vehicle Inspections | Ch. 27 |
| 12-8 | Vehicle Inspections | Vehicle Inspections | |
| | | | |
| 12-13 | Final Exam | Online | |