Central Academy of Technology and Arts Automotive Technology



Automotive Technology 1

Roger Pressley

**COURSE DESCRIPTION**

"Course Description:

This course develops automotive knowledge and skills in performing scheduled automotive maintenance, servicing and basic testing of brakes, electrical systems, drivetrain, engine, HVAC and steering & suspension systems, emphasizing hands-on experience. As part of the NATEF accreditation, topics are aligned to the Maintenance and Light Repair (MLR) requirements. English language arts are reinforced. Work-based learning strategies appropriate for this course include job shadowing. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences."

**OUTCOMES**

Upon satisfactory completion of this course, students will be able to perform the tasks outlined for the Maintenance and Light Repair (MLR)s as required by the National Automotive Technicians Education Foundation (NATEF)

**Grading Polices**

Classroom Performance 30% (test, quizzes, and assignments)

Lab Performance 50% (hands –on-work including NATEF task list safe work performance)

Exam 20%

**Tutoring hours-**

 8:00-8:45 Tuesday-Thursday

**Required Materials:**

Binder

Pencils/pen

Safety glasses

Suitable shop apparel

**Resources**

CDX online text book: <http://lv2014.unionccc.cdxsite.com/>

Electude : https://ncunionhs.electude.com

https://ncunionhs.electude.com/

 “EmpowerED Family Portal” -  [https://www.ucps.k12.nc.us/domain/2917](https://webmail.ucps.k12.nc.us/owa/redir.aspx?C=neq7mzG0dtSg_GNLb1d6W0C0PdQ54YzL_4ivxrKUc0scAz17Cu7UCA..&URL=https%3a%2f%2fwww.ucps.k12.nc.us%2fdomain%2f2917)

**Make-up work rules /procedures**

Two days to turn in work do to absence

**TARDY POLICY:**

At CATA, instruction is very important. All students are expected to be in their classrooms and ready to receive instruction before the tardy bell rings for each class. Following the tardy bell, students who are not in class must report to the front office for a tardy pass if they tardy to first period.  During the rest of the day teachers will mark student tardy in the PowerSchool Attendance System.   Only students with a Tardy Pass will be admitted after the tardy bell rings for first period.  **There is absolutely no food allowed in the classrooms.  Students may not bring in food.**

**Tardies will be recorded as unexcused unless an excuse can be verified by staff. Tardies will result in the following penalties:**

**All students must report to the office when tardy to first period and to class the rest of the day.  Teachers will mark students tardy who are late to 2nd period, 3rd period, and 4th period.  If a student is tardy twice in third period on Cougar Time days (Once before class and once after lunch), then the teacher will  mark them tardy one time in Power School and write it up as a minor incident in Educator Handbook for the second tardy of the period.**

**1st/2nd Tardy:**  Warning from an administrator in the front office (1st period) and the teacher in the classroom (all periods)

**3rd Tardy:**  Warning from an administrator in the front office (1st period) and the teacher in the classroom (all periods).  **The teacher will contact the parent on the third tardy by phone.**

**4th/5th Tardy:**Warning from an administrator in the front office (1st period) and the teacher in the classroom (all periods). **The teacher will submit a discipline referral to the administration** and 1 day ASD with administration.  The administration will contact the parent.

**6th/7th Tardy:**  Warning from an administrator in the front office (1st period) and the teacher in the classroom (all periods). **The teacher will submit a discipline referral to the administration**and 2days ASD with administration.  The administration will contact the parent.

**8th Tardy:**Warning from an administrator in the front office (1st period) and the teacher in the classroom (all periods).  **The teacher will submit a discipline referral to the administration and 3 days ASD.**The administration will set up a parent conference, create a written plan, and possible additional consequences.

* Please note that administrator warnings will only come from an administrator in the office for first period tardies.  Please be sure to give warnings to students in all other periods.

*The administration reserves the right to modify consequences on a case-by-case basis whenever appropriate. This may include loss of parking privileges. Students arriving on late buses will not be considered tardy.*

**Late Work:**

Any late work that cannot be made up at all is recorded as a **0**

If a student has the opportunity to make up work then, the grade is recorded as a **1**

**Exam Exemption Policy**

**For any class that does NOT have an EOC, NC Final, or CTE Exam.  ONLY FOR TEACHER MADE EXAMS**, please place in your syllabus

**High School students will not be required to take a teacher-made****[[6]](https://webmail.ucps.k12.nc.us/owa/redir.aspx?C=1eZp8a9MX3isbvicVrybMlEDnpcyMeINJ665urtdT1k6-C-qYQfWCA..&URL=file%3a%2f%2f%2fC%3a%2fUsers%2fkatie.davis%2fDesktop%2f4-1%2520Attendance%2520Approved%25206.5.18.docx%23_ftn6" \t "_blank) final exam in a course in the following situations:**

·                     **The student has an average of 90 or above the week prior to the administration of the exam and has no more than 3 absences (excused or unexcused) in the class; or**

·                     **The student has an average of 80 or above the week prior to the administration of the exam and has no more than 2 absences  (excused or unexcused) in the class**

**Classroom Expectations**

Students are expected to adhere to all exiting CATA policies while attending the Automotive Training Programs and to contribute to a safe and productive learning environment. Any student’s actions place themselves or other students at risk or negatively impact the learning opportunities for others will face disciplinary actions and possible removal from the program.

All classes strive to prepare students for adult life by teaching skills and behaviors that will be valued in the work place.

The flowing expectations are stressed and graded in the class:

Attendance: Be here on time each day, prepared to work, dressed appropriately.

Respect: Use appropriate language, be honest, and truthful, and be respectful of peers and adults.

Responsibility: Complete work on time, follow directions, and use resources to answer questions, ask for help when needed, contribute to class discussions

Quality: Show determination to complete task, be consistent in quality, and focus on the task at hand.

Team: Work as a productive team member in a verity of roles, communicate in a sensitive way.

**Learning Platform at Central Academy**

 Canvas: The majority of assignments will be submitted on our new "learning platform," Canvas. Assignments can be submitted a variety of ways including, uploading files, typing into text boxes, and sharing Google documents/presentations. Students not having used Canvas before should alert the teacher and they will be shown how to submit assignments on Canvas. Individual assignments will indicate which method of submission on Canvas is expected. If students need a refresher or have questions, they can access the Canvas Student Guide for specific instructions. It is the student's responsibility to ensure assignments are submitted on time and to contact the instructor if there is a problem. The Canvas Learning Platform logs every student log-in on Canvas which provides teachers with a list of when students log-in to Canvas using their user id.

 Canvas is used to grade assignments as well, however, the grades in Canvas, while accurate to that assignment, are NOT the teacher’s gradebook. The teacher’s gradebook includes categories of assignments that may be weighted differently and may include grades for assignments that did not use the Canvas Learning Platform. Therefore, students and parents should always check their child’s true average on the Parent Portal on Powerschool.

**I can be contacted at:**

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Phone 704-296-3088

**AT1 Task List**

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| **Task#** | **ENGINE REPAIR** | **Individual or Group Task** | **Date** |
| I-A-3 | Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action. |   |   |
| I-C-2 | Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment |   |   |
| I-C-4 | Inspect and test coolant; drain and recover coolant; flush and refill cooling system; use proper fluid type per manufacturer specification; bleed air as required. |   |   |
| ASE-A-11 | Inspect and replace accessory belt driven water pumps. |   |   |
| ASE-A-3 | Check for abnormal engine noises. |   |   |
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|  | **AUTOMATIC TRANSMISSION & TRANSAXLE** |  |  |
| II-B-4 | Drain and replace fluid and filter(s); use proper fluid type per manufacturer specification. |   |   |
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|  | **MANUAL DRIVE TRAIN & AXLES** |  |  |
| III-A-2 | Drain and refill manual transmission/transaxle and final drive unit; use proper fluid type per manufacturer specification. |   |   |
| III-E-1 | Clean and inspect differential housing; check for leaks; inspect housing vent. |   |   |
| III-E-3 | Drain and refill differential housing. |   |   |
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|  | **SUSPENSION & STEERING** |  |  |
| IV-B-1 | Inspect rack and pinion steering gear inner tie rod ends (sockets) and bellows boots. |   |   |
| IV-B-3 | Flush, fill, and bleed power steering system; use proper fluid type per manufacturer specification. |   |   |
| IV-B-4 | Inspect for power steering fluid leakage |   |   |
| IV-B-5 | Remove, inspect, replace, and adjust power steering pump drive belt. |   |   |
| IV-B-7 | Inspect pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper. |   |   |
| IV-B-8 | Inspect tie rod ends (sockets), tie rod sleeves, and clamps. |   |   |
| IV-B-9 | Inspect upper and lower control arms, bushings, and shafts. |   |   |
| IV-B-10 | Inspect and replace rebound bumpers. |   |   |
| IV-B-11 | Inspect track bar, strut rods/radius arms, and related mounts and bushings. |   |   |
| IV-B-12 | Inspect upper and lower ball joints (with or without wear indicators). |   |   |
| IV-B-13 | Inspect suspension system coil springs and spring insulators (silencers). |   |   |
| IV-B-14 | Inspect suspension system torsion bars and mounts. |   |   |
| IV-B-15 | Inspect and/or replace front/rear stabilizer bar (sway bar) bushings, brackets, and links. |   |   |
| IV-B-16 | Inspect, remove, and/or replace strut cartridge or assembly; inspect mounts and bushings. |   |   |
| IV-B-17 | Inspect front strut bearing and mount. |   |   |
| IV-B-18 | Inspect rear suspension system lateral links/arms (track bars), control (trailing) arms. |   |   |
| IV-B-19 | Inspect rear suspension system leaf spring(s), spring insulators (silencers), shackles, brackets, bushings, center pins/bolts, and mounts. |   |   |
| ASE-D-51 | Diagnose wheel/tire vibration, shimmy, and noise concerns; determine needed repairs. |   |   |
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|  | **BRAKES** |  |  |
| V-B-3 | Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging, wear, loose fittings and supports. |   |   |
| V-B-5 | Identify components of brake warning light system. |   |   |
| V-B-7 | Test brake fluid for contamination. |   |   |
| V-D-10 | Check brake pad wear indicator; determine necessary action. |   |   |
| V-F-3 | Check parking brake operation and parking brake indicator light system operation; determine necessary action. |   |   |
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|  | **ELECTRICAL/ELECTRONIC SYSTEMS** |  |  |
| VI-A-2 | Demonstrate knowledge of electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohm’s Law). |   |   |
| VI-A-3 | Use wiring diagrams to trace electrical/electronic circuits. |   |   |
| VI-A-9 | Inspect and test fusible links, circuit breakers, and fuses; determine necessary action. |   |   |
| VI-B-1 | Perform battery state-of-charge test; determine necessary action. |   |   |
| VI-B-2 | Confirm proper battery capacity for vehicle application; perform battery capacity test; determine necessary action. |   |   |
| VI-B-5 | Perform slow/fast battery charge according to manufacturer’s recommendations. |   |   |
| VI-B-9 | Identify hybrid vehicle auxiliary (12v) battery service, repair, and test procedures. |   |   |
| VI-D-1 | Perform charging system output test; determine necessary action. |   |   |
| VI-D-2 | Inspect, adjust, or replace generator (alternator) drive belts; check pulleys and tensioners for wear; check pulley and belt alignment. |   |   |
| VI-D-3 | Remove, inspect, and/or replace generator (alternator). |   |   |
| VI-E-2 | Aim headlights. |   |   |
| ASE-A-12 | Confirm fan operation (both electrical and mechanical); inspect fan clutch, fan shroud, and air dams. |   |   |
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|  | **HVAC** |  |  |
| VII-B-1 | Inspect and replace A/C compressor drive belts, pulleys, and tensioners; visually inspect A/C components for signs of leaks; determine necessary action. |   |   |
| VII-B-3 | Inspect A/C condenser for airflow restrictions; determine necessary action. |   |   |
| VII-D-1 | Inspect A/C-heater ducts, doors, hoses, cabin filters, and outlets; determine necessary action. |   |   |
| ASE-A-12 | Confirm fan operation (both electrical and mechanical); inspect fan clutch, fan shroud, and air dams. |   |   |
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|  **Task#** | **ENGINE PERFORMANCE** | **Individual or Group Task** | **Date** |
| VIII-A-6 | Verify engine operating temperature. |   |   |
| VIII-C-1 | Replace fuel filter(s) where applicable |   |   |
| VIII-D-1 | Inspect, test, and service positive crankcase ventilation (PCV) filter/breather cap, valve, tubes, orifices, and hoses; perform necessary action. |   |   |
| ASE-A-14 | Perform air induction/ throttle body service. |   |   |
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|  | **Scoring**0=Not Mastered1=Partially Mastered2=Mastered**Individual or Group Task** I = Task performed by Individual G2 = Performed by Group of 2 studentsG3 = Performed by Group of 3 students E = Only exposed to task |  |  |
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