



Evanston Township High School

VOCATIONAL AUTOMOTIVE PROGRAM

Automotive Technology II Quarter 1 Syllabus

Grade Levels:	12	Credit:	4
Prerequisite:	Auto Tech	Length:	2 Semesters
Instructor:	Mr. Michael Wylie		
Office:	847-424-7595 (Please leave message)		
Office Hours:	Available before and after class (Most days)		
Text:	<u>Auto Elec and Electronics</u> (James E. Duffy) <u>Auto Brakes</u> (Chris Johanson – Martin T. Stockel) Goodheart-Wilcox 2004		

Major Course Goals:
Units of Instruction

- Demonstrate shop and personal safety practices
- Demonstrate safe handling and use of appropriate tools
- Demonstrate use of service manuals and other reference sources
- Demonstrate skills required to prepare vehicle for service (Basic Service)
- Demonstrate general automotive knowledge and exposure
- Demonstrate suspension and steering knowledge and exposure
- Demonstrate engine performance knowledge and exposure
- Demonstrate brakes knowledge and exposure
- Demonstrate electrical/electronics knowledge and exposure

Content: This is the fifth of eight quarters designed to prepare students for a career as an automotive technician in four specialty areas of the automotive service field. The four areas are:
(1) Electricity/Electronics (2) Engine Performance (3) Brakes and (4) Steering and Suspension.

To assure that students have the best chance for success as an entry-level technician, our intentions are to meet industry standards as stated by the National Automotive Technicians Education Foundation (NATEF), which certifies automotive training programs. It's parent organization, ASE, is the same group that certifies automotive technicians.

For this reason, students are required to perform all of the tasks taught in this quarter to the best of their ability and **in a safe and proper manner.**

Activities: There will be a combination of lab work and related study and instruction in the above areas of automotive technology. Lab activities will consist of a combination of bench work, demonstration modules, and hands-on experiences with training aids and late model vehicles. See attached list for specific tasks that students will be required to perform.

Tools, Equipment, and Clothing: Tools and equipment will be provided for lab sessions. Students do not need to bring their own tools to class but are strongly encouraged to begin "building up" their own tool boxes. Automotive related employment often requires that employees have solid technical skills and complete tool boxes. Several tool companies offer substantial discounts to automotive students. Our advice is to take advantage of these programs when they are available. Long pants and sturdy shoes are recommended for safety purposes. The instructor reserves the right to dismiss a student from lab if clothing is deemed unacceptable.

Safety:

- All students will be required to sign a Safety Rules Agreement and practice all the rules of work safety.
- Safety glasses are to be worn in the lab at all times. Students who wear regular prescription glasses must provide proof that they are of the safety approved type or must wear protective goggles over their glasses.
- No safety precaution will go unobserved. Violation of safety practices will result in lower grades and/or expulsion from the class.

Vehicle Etiquette:

- Students are not allowed to lounge in the training vehicles.

- Students must refrain from improper use of radios, seats, and other accessories in the training vehicles.
- Students must drive no faster than walking speed in the lab or immediate parking areas.
- Student cars must be parked only in assigned spots.
- Creating unsafe practices will result in lower grades and/or expulsion from the class.

ATTENDANCE: Attendance for all class sessions is expected, and records will be maintained. ETHS attendance policy will be followed.

TARDIES: Tardiness and leaving class / lab early are not allowed. ETHS tardy policy will be followed.

Evaluation/Grades: Grades will be based on:

- Attendance/Tardies
- Lab Safety Practices
- Completion of Lab Worksheets
- Participation in Lab Activities
- Shop Cleanup During and After Lab Activities
- Homework Assignments
- Presentations
- Tool Usage
- Quizzes / Tests / Exams

Grading Scale

A	93 - 100
B	86 - 92
C	78 - 85
D	70 - 77
F	0 - 69

EXPECTED COMPETENCIES/OUTCOMES:

At the completion of this course, the student will, given the appropriate special tools and equipment, be able to safely perform the following list of tasks with a degree of proficiency and in a period of time deemed satisfactory by the instructor.

ELECTRICAL/ELECTRONIC and BRAKE SYSTEMS

For every task in Electrical/Electronic and Brake Systems, the following safety requirement must be strictly enforced:

Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

Code	NATEF TASK	Priority	Completion Date & Instr. Init.
	B. Battery Diagnosis and Service		
VI.B.1	Perform battery state-of-charge test; determine necessary action.	P1	
VI.B.2	Perform battery capacity test; confirm proper battery capacity for vehicle application; determine necessary action.	P1	
VI.B.3	Maintain or restore electronic memory functions.	P1	
VI.B.4	Inspect, clean, fill, and/or replace battery, battery cables, connectors, clamps, and hold-downs.	P1	
VI.B.5	Perform battery charge.	P1	
VI.B.6	Start a vehicle using jumper cables or an auxiliary power supply.	P1	
VI.B.7	Identify high voltage circuits of electric or hybrid electric vehicle and related safety precautions.	P3	
VI.B.8	Identify electronic modules, security systems, radios, and other accessories that require reinitialization or code entry following battery disconnect.	P1	
VI.B.9	Identify hybrid vehicle auxiliary (12v) battery service, repair and test procedures.	P3	
	C. Starting System Diagnosis and Repair		
VI.C.1	Perform starter current draw tests; determine necessary action.	P1	
VI.C.2	Perform starter circuit voltage drop tests; determine necessary action.	P1	
VI.C.3	Inspect and test starter relays and solenoids; determine necessary action.	P2	
VI.C.4	Remove and install starter in a vehicle.	P1	
VI.C.5	Inspect and test switches, connectors, and wires of starter control circuits; perform necessary action.	P2	
VI.C.6	Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition.	P2	
	C. Drum Brake Diagnosis and Repair		

V.C.1	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pedal pulsation concerns; determine necessary action.	P1	
V.C.2	Remove, clean, inspect, and measure brake drums; determine necessary action.	P1	
V.C.3	Refinish brake drum; measure final drum diameter.	P1	
V.C.4	Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble.	P1	
V.C.5	Inspect and install wheel cylinders.	P2	
V.C.6	Pre-adjust brake shoes and parking brake; install brake drums or drum/hub assemblies and wheel bearings.	P2	
V.C.7	Install wheel, torque lug nuts, and make final checks and adjustments.	P1	
	D. Disc Brake Diagnosis and Repair		
V.D.1	Diagnose poor stopping, noise, vibration, pulling, grabbing, dragging or pulsation concerns; determine necessary action.	P1	
V.D.2	Remove caliper assembly; inspect for leaks and damage to caliper housing; determine necessary action.	P1	
V.D.3	Clean and inspect caliper mounting and slides/pins for operation, wear, and damage; determine necessary action.	P1	
V.D.4	Remove, inspect and replace pads and retaining hardware; determine necessary action.	P1	
V.D.7	Clean, inspect, and measure rotor thickness, lateral runout, and thickness variation; determine necessary action	P1	
V.D.8	Remove and reinstall rotor.	P1	
V.D.10	Refinish rotor off vehicle; measure final rotor thickness.	P1	
V.D.11	Retract caliper piston on an integrated parking brake system.	P3	

5- Mastery	The student demonstrated superior performance. The student completed the task in a manner consistent with the professional standards found in the automotive industry. The student was able to use the correct resources such as tools and procedures to accomplish the task. The student was able to use the lab sheet and follow directions. The student is able to convey (written / orally) his/her thoughts about the task. The student was able to help others by
------------	---

	teaching and working collectively. The student completed the task with no supervision. The student needs no further training on this task.
4- Good Performance	The student demonstrated good performance. The student completed the task in a manner consistent with the professional standards found in the automotive industry. The student was able to move through the task using the proper tools and locate the procedures to accomplish the task. The student was able to follow the lab sheet and follow directions. The student is able to convey (written / orally) his/her thoughts about the task. The student did require some supervision to complete the task.
3- Satisfactory Performance	The student demonstrated satisfactory performance. The student did not meet all the professional standards found in the automotive industry. The student requires a good time of supervision to complete the task. The student needs guidance navigating through locating procedures and the use of proper tools to finish the task.
2- Poor Performance	The student demonstrated poor performance. The student did not meet all the professional standards found in the automotive industry. The student requires a good time of supervision to complete the task. The performance level may result in personal injury. The student was able to finish the task with the aid of the instructor.
1- Unsatisfactory Performance	The student demonstrated unsatisfactory performance. The student was unable to perform the task. The student is a risk for personal or other student injury. The student attempted the task but was unable to finish.
N- No Exposure	The student has no experience in this area. "No Exposure" means student has been exposed to the theory related to a particular task, but did not have the hands-on learning opportunity. "N" will not be held against the student.

Notes:

- Students are encouraged to repeat any task as many times if they would like (time permitting) to move up on our assessment/rubric scale.
- The student completed the task in a manner consistent with the professional standards found in the automotive industry means having used professional and ethical standards.
- All tasks are to be performed using manufacturer procedures and specifications.
- Students who earn a 5, 4, or 3 will be considered to have passed. Students who earn a 2 or 1 will need to redo the task. N will not be held against the student.

Please read, sign, and return this form to Mr. Wylie.

I certify that I have read this syllabus completely and that I understand all the policies regarding safety, attendance, assignments, and grading.

Course: Automotive Technology II

Semester: Senior/ Quarter 1

Student Signature

Parent/Guardian Signature

Date

Date

