Evanston Township High School

VOCATIONAL AUTOMOTIVE PROGRAM

Automotive Technology II
Quarter 4 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: Auto Suspension and Steering (Chris Johanson/Martin T. Stockel)
Auto Engine Performance and Drivability (Chris Johanson)
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 eighth 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.

SUSPENSION AND STEERING AND ENGINE PERFORMANCE

For every task in Suspension and Steering and Engine Performance, 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. Steering Systems Diagnosis and Repair		
IV.B.7	Adjust non-rack and pinion worm bearing preload and sector lash.	P3	
IV.B.8	Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets.	P2	
IV.B.9	Inspect and replace rack and pinion steering gear inner tie rod ends (sockets) and bellows boots.	P2	
IV.B.17	Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper.	P2	
IV.B.18	Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps.	P1	
IV.B.20	Inspect and test electric power assist steering.	P3	
IV.B.21	Identify hybrid vehicle power steering system electrical circuits, service and safety precautions.	P3	
	C. Suspension Systems Diagnosis and Repair		
IV.C.8	Remove, inspect, install, and adjust suspension system torsion bars; inspect mounts.	P3	
IV.C.11	Remove, inspect, and install leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts.	P3	
	D. Related Suspension and Steering Service		
IV.D.3	Test and diagnose components of electronically controlled suspension systems using a scan tool; determine necessary action.	P3	
IV.D.4	Diagnose, inspect, adjust, repair or replace components of electronically controlled steering systems (including sensors, switches, and actuators); initialize system as required.	P3	

IV.D.5	Describe the function of the idle speed compensation switch.	P3	
	A. General Engine Diagnosis		
VIII.A.1	Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.	P1	
VIII.A.3	Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins.	P1	
VIII.A.4	Locate and interpret vehicle and major component identification numbers.	P1	
VIII.A.5	Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary action.	P2	
VIII.A.6	Diagnose abnormal engine noise or vibration concerns; determine necessary action.	P3	
VIII.A.8	Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary action.	P1	
VIII.A.15	Perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses; perform necessary action.	P1	
	B. Computerized Engine Controls Diagnosis and Repair		
VIII.B.1	Retrieve and record diagnostic trouble codes, OBD monitor status, and freeze frame data; clear codes when applicable.	P1	
VIII.B.2	Diagnose the causes of emissions or driveability concerns with stored or active diagnostic trouble codes; obtain, graph, and interpret scan tool data.	P1	
VIII.B.4	Check for module communication (including CAN/BUS systems) errors using a scan tool.	P2	
VIII.B.8	Perform active tests of actuators using a scan tool; determine necessary action.	P1	
VIII.B.9	Describe the importance of running all OBDII monitors for repair verification.	P1	

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 too have passed. Students would who earn a 2 or1 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 4

Student Signature

Parent/Guardian Signature

Date

Date