

**Mission Valley ROP
Logan High School
Automotive Technology 2 Course Syllabus 2022 - 2023**

Course Title: Auto Technology 2

Units of Credit: 20

Meeting Times: Monday thru Friday, 2 class period, 2 Semester

Instructor Name: Mr. Steve Kay

Location/Room #: Mr. Steve Kay- Automotive Shop Room #106

Office Hours: 8:00 AM thru 3:30 PM Monday thru Friday

Contact Info: skay@nhusd.k12.ca.us or skay@mvrop.org or (510) 471- 2520 x 60338

Introduction:

Today's Automotive Technology is light-years past the technology found in the days of the Ford's model 'A's' and the like. Not only has the mechanical technology advanced over the years, but the advancements of alternative "fueling" of today's vehicles is coming of age as well. Additionally, through the means of computer controls in a short period of time we will find ourselves simply "riding" in these machines with wheels while a microprocessor guides our journey safely. With this understanding of just where current automobile technology stands today this course provides a window of opportunity for students to explore the transportation industry from both the ownership side to possibly the career side in many facets of choices related to this ever-expanding technology.

This Automotive Technology course should be one of the most enjoyable experiences in your education. The course offers possibilities of furthering your knowledge of this fascinating piece of engineering development. Attainment of skills in the maintenance and repairs of the automobile, as well as a great amount of consumer information will also be goals within the course. You will develop skills useful for a career or hobby. Even more important, you will gain better understanding of potential career opportunities of today's automobile industry.

A student is not required to have a car in order to be able to work in the Auto Shop. The shop is primarily for learning, not repairs. However, an Auto Shop cannot be considered complete without hands-on experience. There will be some required objectives giving the student hands on experiences of automobile ownership responsibilities regarding maintenance, minor repair and roadside emergencies.

Course Description:

The purpose of the Automotive Technology program is to help the student develop the skills and related technical knowledge of automotive services necessary to meet job entry requirements with a strong base for growth and continued education within the industry. Auto Tech 2 is an overview of the typical skills that make up the auto service industry. Students whom have completed Auto Tech 1 are eligible to further their understanding

and will gain advanced knowledge and experience creating a complete understanding of automobile repair and maintenance as well as a solid understanding of a typical automotive repair facility operation.

The lab activities covered include; the basic automobile, shop safety, typical hand tools and shop equipment usage, vehicle maintenance and service needs, handling and recycling of hazardous materials used in the automotive industry, 4 cycle theory engines and performance operation, cooling and lubrication system operations, transmission operations – both manual and automatic, suspension and brake system operation, steering and wheel alignments, under hood checks, safety inspections and emergency procedures including understanding the hybrid high voltage battery safety guidelines and job seeking skills.

All students who complete Auto Tech II will acquire job entry level skills in several auto / engine service occupations. Students completing this course with a “B” or better will receive three units of credit at Chabot College.

Prerequisites:

Successful completion of Automotive Technology 1 with an earned grade of “C” and a minimum of 75% attendance

Course Objectives:

Upon completion of this course the student should be able to:

- 1- understand and demonstrate the safe practices used in an automotive shop regarding PPE, and general safe practices while in a shop area.
- 2 – identify and demonstrate the safe and proper usage of hand tools, specialty hand tools and shop equipment commonly used in the automotive industry.
- 3 – identify and understand basic vehicle maintenance and basic service needs related to today’s automobile and light duty truck.
- 4 – understand proper handling and disposal of hazardous materials generated during automobile maintenance and repair processes (green technology).
- 5 – identify and demonstrate various types of fasteners and the appropriate thereof.
- 6 – understand basic automotive math and its appropriate application.
- 7 – understand and apply basic electricity in accordance the rules of OHMS law
- 8 – demonstrate the usage of reference materials and document usage.
- 9 – understand and explain basic 4 cycle engine operation and performance

enhancements used in today's automobiles

10 – understand and explain emissions control and feedback computer control systems

11 – understand and explain heating and air condition systems and operations thereof

12 – understand and explain basic automotive cooling and lubricating systems used in today's automobiles.

13 – understand and explain basic transmissions powertrain systems and their required usages.

14 – understand and explain basic suspensions i.e. short arm / long arm and Mc Phearson strut suspension systems

15 – understand and explain braking principals and operations of disc and drum braking systems.

16 – understand and explain basic steering and alignment needs and procedures.

17 – conduct basic “under the hood” safety inspections related to vehicle maintenance.

18 – understand and demonstrate basic safety guidelines regarding hybrid vehicle and EV technology.

19 – understand and explain system operations of Hybrid, EV and ADAS systems and usages.

20 – understand and demonstrate career development skills including resume development.

Laboratory:

The program is to parallel industry closely. Since an evaluation of your work is necessary, points will be earned for completed tasks.

Each student must complete certain basic learning operations, as determined by the instructor, before (s)he can receive a passing grade. The student will know which jobs are required as each quarter begins.

Protective clothing (coveralls, shop coats, or other appropriate clothing), must be kept clean and in good repair.

No open shoes or sandals, no shorts or tank tops. There are some lockers provided for storage.

Since the importance of quality craftsmanship is stressed, all work performed must meet conventional procedure and safety standards. For this reason, demonstrations and/or

instructions will be given for each operation, whether individually or in a group, as the need arises.

Safety:

The Auto Shop has many hazardous situations. The student should attempt using the equipment only after receiving instructions from the instructor and **PASSING** the Safety Exam. The student must always be aware of any dangerous situations with respect for you, your classmates and equipment.

Each student must take and pass a safety test with a perfect score. In addition, there will be safety tests for specific equipment, which must also be passed with a perfect score. Three failures to pass the safety exam as established may result in dismissal from the Auto Shop program. Any infraction of established safety rules may also result in dismissal.

Long hair must be tied back before entering the shop. Remove all jewelry before working in the shop. No earphones, no cell phones or other electronic devices are allowed in the shop or the classroom without instructor permission.

Clean Up:

At the close of the period, each student is responsible for a clean-up assignment.

1. All work is to stop when told to (last 15 min of the class.)
2. The tools are to be cleaned and correctly put away.
3. The area where the student was working is to be cleaned.
4. The clean-up assignment is to be completed.
5. When all shop duties are completed, the students will return to the classroom for dismissal

NOTE: Students will not be dismissed unless the shop is secure, all tools are returned, and all students are quiet in their seats. Every quarter the clean up duties will change, permitting various responsibilities in the various areas of the shop. The shop foreman, (who is elected by the class), is to evaluate the cleanup performance.

Notebook:

Each student will obtain and keep a binder / notebook (2" recommended). The notebook will be used for taking notes during study periods, and to keep handout material, returned tests, and homework. Students must have their notebook and a writing instrument in their possession on 'shop days' before the beginning of the class or they will be considered unprepared.

Test Procedure:

The type of test given will be determined by the material to be evaluated.

The graded, returned tests are to be put in the notebook in proper order.

Questions generally concern current study units, but may cover any of the material previously studied.

Each week there may be a short quiz.

NOTE: Make up quizzes will not be given.

Glossary, tool ID and computations are commonly given.

1. A writing instrument must be provided by the student.
2. Desks must be cleared of all material.
3. Talking is not permitted after receiving the test.
4. Questions about the test must be brought to the instructor (or proctor).
5. Any infractions of the above rules will result in a failure on the exam.

THE GOLDEN RULES TO REMEMBER:

1. When instructions are given – **follow them!**
2. When instructions are not given or not understood – **ask the instructor for help.**
3. When you are to bring things to class (writing instrument, notebook, protective clothing, homework, things like that) – **bring them.**

Required Text, Material, Tools, and Resources:

All course text, handouts and tools will be provided by the instructor for use while enrolled in the course.

Fundamentals of Automotive Maintenance and Light Repair, Kirk Van Gelder, CDX publishing 2020 - ISBN – 978-1-284-14339-3

Industry developed handouts and materials Instructor developed handouts and materials.

It is expected that students come to class prepared each day and will need the following items; Pen #2 pencil note paper issued safety glasses appropriate attire 3 ring binder

Teaching Methods:

- 1 - Lecture
- 2 - Group
- 3 - Discussion
- 4 - Projects
- 5 - Reading Assignments
- 6 - Oral Questioning
- 7 - Multi-Media
- 8 - Hands-on Practice Demonstration
- 9 - Team Learning
- 10 - Simulation

Grading:

Weight to be given to Each Factor:

Homework: - 20 %

Laboratory: - 35%

Examinations and Quizzes: - 20%

Class Work / Participation: - 15%

Final: - 10%

A = 100-90 B = 89-80 C = 79-70 D = 69-65 F = 64-below

You must successfully work from the first day to the last, to receive a satisfactory final grade. The emphasis in this class will be to establish a wide variety of experiences and skills.

NOTE: Participation / Class Work points are given daily and include safety conduct while in shop. Excused absences do not qualify for points – if you do not attend class you do not earn points for participation that day.

Weekly Assignment Schedule Course Schedule:

Students will be advised of the schedule of planned classroom topics, shop days, quizzes / tests, and homework assignments. This schedule should be used for informational purposes only and can be changed at any time.

Late Work:

Students returning from an excused absence are expected to turn in assignments on the first day of return to class; failure to do so will result in the assignment being scored as late. Late work will have the earned grade reduce by 1 full letter grade.

Make-Up Work:

Is available to students who have missed class / shop assignments due to an excused absence and are responsible for contacting the instructor to receive the materials or schedule time for shop work or test / quiz make-up.

Attendance Policy:

Mission Valley ROP's mission is to prepare students for employment, and career preparation via post-secondary educational opportunities. Just as in business and industry, where employees are expected to show up on time every day, Mission Valley ROP students are expected to be on time for classes every day. Toward that end I expect minimum absence and tardiness.

Tardiness - within one quarter:

5 tardies will result in a letter home,

10 tardies will have a referral with Administration, and a 2nd letter sent home

15 tardies will require your parents to attend a conference.

Absences:

Semester classes - more than 5 unexcused absences per semester will result in a loss of Course Completion Certificate.

Year Long Classes – more than 10 unexcused classes will result in a loss of Course Completion Certificate.

Cutting Classes: Students who cut class – attendance for that day will NOT be granted – student will be marked absent for that day.

When you return from an absence it is your responsibility to ask what I missed. Students must arrive on time to class. Talking on a cell phone or having personal conversation outside the class is unproductive and will be considered a tardy. Tardiness reduces instructional time and is disruptive to the classroom. Tardies may prevent the student from receiving a course certificate. Perfect attendance certificates will only be issued to students who have no absences or tardies. There are no exceptions.

Parking:

All students will park in the student lot and will check with the instructor before pulling their car into the Auto Shop or yard.

Live Work:

Mission Valley ROP requires a permission slip to be signed by the owner of the vehicle before a student begins work on an automobile. No exceptions.

Summary:

This class can be most enjoyable and rewarding. You will save yourself (and others) many dollars by more informed purchasing of supplies and labor, by performing preventive maintenance, and by doing your own repairs. The automotive field offers many avenues of vocation, as well as, vocational pursuits. If you develop the necessary skills and desires, an automotive career can provide a good wage. This school, and this shop in particular, is yours. Take care of it. Every dollar spent to replace stolen materials, to repair damage of vandalism, or to remove graffiti; means less equipment for your auto shop. The instructor, the tools and equipment, the reference materials, and the facilities are here for you. SET YOUR GOALS, AND WORK HARD TO ACHIEVE THEM. IT WILL ALWAYS BE WORTH YOUR EFFORTS.

Additional Policies and Procedures of the Classroom:

Students are expected to adhere to all existing James Logan High School policies while attending the Automotive Training Programs and to contribute to a safe and productive learning environment. Any students whose 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 workplace. The following expectations are stressed and graded in 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

Safety: Follow safety rules and procedures, keep work area orderly
Responsibility: Complete work on time, follow directions, use resources to answer questions, ask for help when needed, contribute to class discussion

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

Team: Work as a productive team member in a variety of roles; communicate in a sensitive way
Mission Valley ROP is committed to preparing students for the workforce.

This preparation includes technical skills as well as business ethics. Mission Valley ROP does not condone cheating. Any student caught cheating on an exam or copying work from other students will be given one warning and a failing grade on that assignment. Any subsequent incident will result in termination from his/her Mission Valley ROP program, a failing grade, and loss of credits.

No food or drinks will be allowed in the automotive building, including classroom and shop. Students violating this policy will receive one warning.

Students completing this course with a grade of “C” or better will receive a Mission Valley ROP Certificate of Completion listing competencies achieved in the course.”

In-Class Events:

Visitors from industry, post-secondary educational institutions and other areas related to course objectives may visit the class from time to time. Course related field trips may be planned and any associated costs would be notified in advance.

INFORMATION AND PERMISSION LETTER

I, _____ have read and understand the policies and procedures which includes the grading and attendance policies and the safety rules for the Automotive Training Program and agree to abide by them.

STUDENT SIGNATURE _____

DATE _____

Students will be given instruction and demonstration on the safe and proper use of all the tools, equipment and materials used in the automotive service technology training facility which are common to the automobile service industry along with safe procedures for working on vehicles in the shop. If you would like a list of the tools, equipment and materials used in the shop or a copy of the MSDS (Material Safety Data Sheet) for those materials, please let the instructor know. Students are expected to read, understand and follow all safety rules pertaining to operation and use of tools and equipment and proper handling and storage of any hazardous materials found in the shop such as lubricants, brake fluid, solvents, antifreeze, and oil soaked rags and absorbents. The purpose of this letter is to inform you about the policies and procedures for the operation of the shop. If you have any questions feel free to call the instructor Mr. Steve Kay at 510-471-2520 x 60338 or skay@nhusd.k12.ca.us.

As the parent or guardian of I understand that he/she will be working with tools, equipment and materials that are common to the automotive service industry as well as completing live work on vehicles in the shop. I have read and understand the policies and procedures for the Automotive Training Program and grant permission for my son/daughter to participate in the class.

PARENT OR GAURDIAN SIGNATURE and DATE

Emergency Contact Information

Name of emergency contact / Emergency phone number

Name of alternate emergency contact / Alternate emergency phone number