



# Pima Community College

## Course Syllabus

**Campus/Center:** TUSD Automotive

**Room Number:**

**Course Number:** AUT 101 **Course Title:** Automotive Maintenance

**CRN:**11044

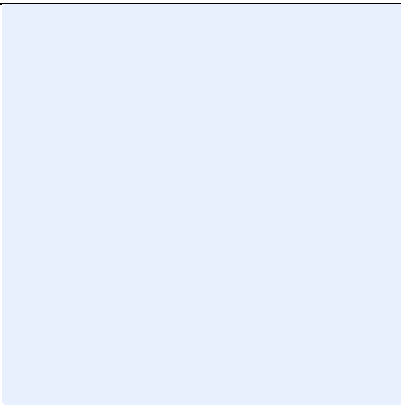
**Course Description:** Automotive Maintenance Techniques of routine vehicle maintenance. Includes customer vehicle identification and handling, new vehicle pre-delivery inspection and preparation, safety inspection, lubrication tasks, light line tasks, and fluid flushing.

**Course Prerequisites:** None

**Course Co-requisites:** None

**Required Textbook(s):** CDX Online log in will be provided.

**Other Course Materials:** Clear Safety Glasses with side shields or side shields for prescription glasses are required.



[MyPima.pima.edu](http://MyPima.pima.edu) – MyPima is a course tool used as means of communication and/or for accepting course work. Your instructor will guide you in how it may be used in your course. Through MyPima you can also register and pay for classes, check your financial aid, access your student email, view your schedule, and read college-wide announcements.

**Instructor:**

**Office Location:**

**Office Hours:** Monday – Friday 8:00am-4:00pm

**Start Date:**

**End Date:**

**Website:** Pima.edu

**Class Meeting Days:** Monday - Friday

**Class Meeting Time:** Monday 9:05-10:50am

Wednesday – 8:00-8:49am Thursday/Friday –  
8:00am – 9:00am

**Final Exam or Final Activity Date:** This will be  
posted in Synergy student view.

**Welcome!** Automotive students

## **Student Learning Outcomes**

**Upon successful completion of the course, the student will be able to:**

1. Perform a pre-delivery inspection on a typical vehicle.
2. Perform an engine oil and filter change on a typical vehicle.
3. Perform an automatic transmission/transaxle fluid and filter change on a typical vehicle.
4. Perform a fluid change on a standard transmission/transaxle, differential and transfer case
5. Perform a coolant drain/fill, and hoses, wipers, and belts removal and replacement.
6. Perform a tire rotation.

## **Academic Integrity**

All PCC students are considered to be responsible individuals and are accountable for their own behavior. The College expects students to obey local, state and federal laws, and to follow the Student Code of Conduct. PCC has zero tolerance toward student acts of plagiarism. Plagiarism, as defined in the Student Code of Conduct, "includes representing the work of another person as one's own, including information downloaded from the Internet. The use of another person's words, ideas, or information without proper acknowledgment also constitutes plagiarism." The Student Code of Conduct is specific with regard to the academic ethics sanctions for plagiarism: [www.pima.edu/studentserv/studentcode](http://www.pima.edu/studentserv/studentcode).

## **Student Official Withdrawal from Class**

A student may withdraw him/herself from the class by the Student Withdrawal Deadline listed above and a grade of 'W' will be recorded on the transcript. It is strongly recommended that you speak with faculty and a financial aid staff member before deciding to withdraw. Visit <http://www.pima.edu/paying-for-school/financial-aid/managing-award/dropping-or-withdrawing.html> to determine how dropping or withdrawing from class may have a negative impact your Standards of Academic Progress, financial aid, and/or scholarships. Review the Standards of Academic Progress at <http://www.pima.edu/new-students/register-for-classes/academic-progress.html> to understand the criteria required for and consequences of official withdrawals.

## **Financial Aid, Veteran's Benefit, and other student Benefits**

Your financial aid, veteran's, and other benefits from PCC and external agencies are contingent on your participation, performance, and compliance with guidelines set by the College the benefit providers. Please see a student financial aid advisor, veteran's benefits advisor, or other agency advisor for information on your benefits, your status with those benefits, and other items of which you should be aware.

## **Attendance Requirements**

Throughout the term, students must substantively participate in such a way as to ensure successful completion of the course by the end of the term (i.e. regularly submit assignments and continue to interact with other students and the course instructor). Students must complete at least one academic task per week/7-day period. **Students who do not actively participate in the class by 8/10/2017 will be dropped from the class.** This may result in adverse financial consequences such as a change in financial aid, veterans' benefits, and/or other benefits related to being a student.

Examples of active participation include (but are not limited to):

- attending class during each scheduled face-to-face session
  - participating in a class-related activity each week/7-day period such as attending a faculty-organized study session, working on course content in a supervised center, or meeting with the instructor face-to-face or online
  - completing a class-related task such as an interactive tutorial or computer-assisted instructional activity
  - completing an assessment during each week/7-day period; the assessment might address content that should have been learned to date or might be in the form of a progress self-assessment\*\*
  - posting academically-related communications regarding course content
  - academically-participating in a discussion
- note that simply logging on to the computer-based systems does not meet the federal guidelines for active participation.
- Practicing or Testing on a Work Station every class

### **American Disabilities Act (ADA) Policy Statement**

- PCC is committed to providing accommodations for qualified individuals with disabilities in a timely and effective manner. To request a reasonable accommodation, students must be registered with the campus Access and Disability Resources (ADR) office. Accommodations will be made based on eligibility determined by Access and Disability Resources. Services can be requested at any time during the semester. Requesting services well in advance will help to ensure that resources are available when needed. Please contact the ADR office at 206-6688 or [ADRHelp@pima.edu](mailto:ADRHelp@pima.edu).

### **General Campus Conduct**

- Visitors are not allowed in class sessions or on field trips.
- Possession of drugs, alcohol or firearms are not allowed on college property per College policy.
- Smoking, e-cigarettes and soliciting are not allowed in classrooms. Smoking is only permitted in designated smoking areas.
- Any item that is used in a way that is disruptive to the classroom is not allowed. Such items may include cell phones, pagers and any other electronic devices that distract students.
- Animals are not allowed in the classroom as per SPG-3603/BA. Visit <https://www.pima.edu/about-pima/policies/standard-practice-guides/SPG-3603-BA.html>
- Students creating disturbances that interfere with the conduct of the class or the learning of others, violates the Student Code of Conduct. Students will be referred to an administrator.
- Disruptive behavior will not be tolerated and can be cause for being dropped from the class. Disruptive behavior disrupts the learning process. Examples of disruptive behavior can be inappropriate talking, arriving late or leaving early, sleeping in class, etc.

### **Course Grade Determination**

#### **Grading and Learning Criteria:**

**Note: Above average grades, require an above average amount of time and effort!!!**

Each learning station has (3) parts that you are responsible for completing **in the following order:**

**1st**-Learning and Practicing the information and tasks taught at the learning station until all videos are completed and you mastered the content.

**2nd**-Complete Homework assignments with a minimum of 75% proficiency

**3<sup>rd</sup>**-Complete the Written Exam with a minimum of 75% proficiency

You may retake the 2<sup>nd</sup> and 3<sup>rd</sup> requirement (listed above), one time only! **Failure after a second attempt to obtain the required proficiency constitutes failure of the learning station** and you will be moved on to a different learning station.

You **may only retest or redo** an assignment to be turned in for a grade, **(24) hours later** or your next scheduled lab! Do not retest or redo until you are absolutely sure you have mastered the content and tasks!

Note: The **above grading and learning criteria supersedes any previous written procedures** such as listed on existing work orders.

#### **Grade system:**

**A-Superior, (6)** learning stations mastered. **(Takes at least 64-hours of course work in the lab)**

**B-Above average, (5)** learning stations mastered. **(Takes at least 60-hours of course work in the lab)**

**C-Average, (4)** learning stations mastered.

**D-Below average, (3)** learning stations mastered.

**F-Failure, (2)** or less learning stations mastered.

**I-Incomplete**-Requested by student, in writing to the Instructor of record 5-days before the last official day of the semester.

Requires a minimum of 60-hours lab time recorded on your timecard and 60% of the learning stations (all 4-parts) completed and signed off on your time card by Lab personnel.

#### **Course Policies and Procedures**

**There are no excused absences!** If you miss time, it must be made up. Notify an instructor if you are going to be absent and schedule your make up time. Failure to notify an instructor of your absence could result in your card being removed from the rack and you will have to speak with an instructor before returning. Students, who **fail to show up for two weeks (minimum of 6 hours)** or more prior to the 45<sup>th</sup> day, and have not contacted the instructor listed on this syllabus, may **be withdrawn** from the class. Those who miss two weeks or more after the 45<sup>th</sup> day will **receive an "F"** (unless your grade is higher) for the course. If you are dropping the class it is your responsibility to go to registration and submit a drop form. You must **attend each course every week** for approximately (4) hours each (**minimum of 3 hours each**). If you are going to be more than a half hour late, or absent, you must call us and ask us to either hold your station available a little longer, or to document on your card that you will be absent. If you are absent, **you must make up the time** the same week or following week. AUT 122 is the only course that is an exception, since its schedule is different. Students **arriving more than one hour after** the class begins **will not be allowed** to attend class for that period!

Before being assigned to a learning station, the **student must complete the Automotive Technology program Orientation/Briefing**, which includes personal and environmental safety. Some courses require student assignment to specific learning stations-check with the lab personnel.

You are required to read the assigned chapter(s) and complete the homework for every learning station prior to completing the required tests, as outlined in the learning station descriptions listed below. You will answer all of the questions at the end of the chapter(s), in writing (A,B,C,D, answers are OK for the multiple choice questions) to be turned in for grading and documentation on your time card and work order, **after completing the learning portion** of the learning station.

#### **Course Schedule**

|           |                                   |
|-----------|-----------------------------------|
| Monday    | 1 <sup>st</sup> period 9:05-10:50 |
| Tuesday   | no class                          |
| Wednesday | 8:00-8:49                         |
| Thursday  | 8:00-9:00                         |
| Friday    | 8:00-9:00                         |

## Additional Information

**Learning Stations and Homework:** Home work is done only on our Mitchell-On Demand computer program-see notes under learning stations.

1. Perform a PDI and safety inspection to a typical vehicle. **Homework**-complete homework assignment #1 in the learning station handout. **Included in the back of the learning station** handout along is additional fan belt removing/replacing info.

**Note, Wheel lug nut tightening torque specifications have been changed to only 50 lbs!**

2. Perform engine oil and filter change to a typical vehicle. **Homework**-complete homework assignment #2 in the learning station handout.
  - **The oil leak behind the torque converter is the TSB for the homework...record the "description" information for step three "data" of your homework.**
  - **All fluids, other than engine oil, should be changed every 3 years or 30,000 miles to ensure vehicle life.**
3. Perform an automatic transmission/transaxle fluid and filter change. **Homework**-complete homework assignment #3 in the learning station handout. Supplemental; Automatic Transmission and Power Steering Fluid Exchange/Flush-see lab staff.

Supplemental; Brake System Fluid Exchange/Flush-see lab staff.

- **Not all automatics have a drain pan-Honda for example may only have a drain and a fill plug and sometimes a dipstick.**
4. Perform an oil change to a standard transmission/transaxle or differential or transercase. **Homework**-homework assignment #4 in the learning station handout.
    - **Click on "automatic HVAC", then from "tables", click on diagnostic trouble codes...you won't need to click on actuator check, simply click on clearing diagnostic trouble codes.**
    - **Also, the info regarding a differential without a drain plug is in the video for station #5**
    - **Not all differentials have drain plugs!**
  5. Perform light line tasks: R&R Engine Coolant, upper/ lower radiator hoses, one wiper blade, all V-belts from a vehicle, and a Serpentine belt. The goal is for you to be able to remove any fan belt from any vehicle in our lab and to understand how to bleed air from front wheel drive vehicle's cooling systems (video demos this on the Sentra). **Homework**-complete homework assignment #5 in the learning station handout.

Supplemental; Cooling System Fluid Exchange/Flush-see lab staff

Supplemental; Brake System Fluid Exchange/Flush-see lab staff.

**You may need to click on "VIN definition" for VIN info.**

6. Perform a tire rotation after lab personnel mark with chalk and rotate according to the latest posted rotation chart as per the type of vehicle you are assigned to. **Homework**- complete homework assignment #6 in the learning station handout.

**Notes: Wheel lug nut tightening torque specifications have been changed to only 50 lbs!**

**Course Outline:**

- I. Personal and Environmental Safety
  - A. Clothing and personal protection devices
  - B. Fire extinguishers: their location and use
  - C. Material Safety Data Sheets (MSDS) location and application
- II. General Engine Diagnosis
  - A. Interpret and verify complaint and determine necessary action
  - B. Inspect engine assembly for fuel, oil, coolant and other leaks, and determine necessary action
  - C. Diagnose engine noises and vibrations and determine necessary action
  - D. Diagnose the cause of excessive oil consumption, unusual engine exhaust color, odor and sound and determine necessary action
  - E. Perform engine vacuum tests and determine necessary action
  - F. Perform cylinder power balance tests and determine necessary action
  - G. Perform cylinder compression tests and determine necessary action
  - H. Perform cylinder leakage tests and determine necessary action
- III. Lubrication System Diagnosis and Repair
  - A. Perform oil pressure tests and determine necessary action
  - B. Inspect oil pump gears or rotors, housing, pressure relief valves, pump drive and perform necessary action
  - C. Inspect auxiliary oil coolers and replace as needed
  - D. Inspect, test, and replace oil temperature and pressure sensors
  - E. Perform engine oil and filter change
- IV. Cooling System Diagnosis and Repair
  - A. Perform cooling system tests (pressure, combustion leakage, and temperature) and determine necessary action
  - B. Inspect, replace, adjust drive belts, tensioners and pulleys
  - C. Inspect and replace engine cooling and heater systems hoses
  - D. Inspect, test and replace thermostat and housing
  - E. Test coolant, flush and refill cooling system with recommended coolant and bleed air as required
  - F. Inspect, test and replace water pump
  - G. Remove and replace radiator