Pima Community College
Course Syllabus

Campus/Center: Rincon High School **Room Number:** T-9 Automotive Shop

Course Number: AUT 100 **Course Title:** Small Engine Troubleshooting and Repair **CRN:** 20904

Course Description: Small Engine Troubleshooting and Repair Principles and procedures for overhauling, troubleshooting and repairing small engines. Includes safety and hazardous materials handling, engine types and identification, engine operation and maintenance, disassembly and inspection, engine reconditioning and assembly, fuel and ignition system assembly, mechanical operation and testing, multicylinder engines, and overhead valve (OHV) engines.

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 – 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
Instructor Phone:
Instructor Email:

Start Date:
End Date:
Website: Pima.edu
Class Meeting Days: Monday - Friday
Class Meeting Time: Monday 9:05-10:50am
Wednesday – 8:00am-8:49am Thursday/Friday – 8:00-9:00am
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 Engine Identification, Measuring, and Failure Analysis.
2. Demonstrate assembly of the Fuel System components.
3. Demonstrate assembly of the Ignition System components.
4. Student will be able to assemble, diagnose, and operate a small engine.

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/studenserv/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.

General Campus Conduct

- Visitors are not allowed in class sessions or on field trips.
- Possessions 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 (**4**) 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
3rd-Complete the Written Exam with a minimum of 75% proficiency
4th-Complete the Hands-On Test with a minimum of 100% proficiency

You may retake the 2nd, 3rd, or 4th 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, (4) learning stations mastered. **Including Homework and Written Passing**
B-Above average, (3) learning stations mastered. **Including Homework and Written Passing**
C-Average, (2) learning stations mastered. **Including Homework and Written Passing**
D-Below average (1) learning stations mastered. **Including Homework and Written Passing**
F-Failure, No Stations Completed
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.
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 45th 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 45th day will **receive an "F"** (unless you 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	1st 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:

Learning Station **(Completed in sequence), Stations include a written exam**

#1: Engine Identification, Measuring and Failure Analysis. **CDX Online assignment**

#2: Fuel Systems. **CDX Online Assignment + Written Test.**

#3: Ignition systems. **CDX Online assignment + Written Test.**

#4: Engine Assembly & Operation-**CDX Online assignment +Written Test.**

Course Outline:

I. Safety and Hazardous Materials Handling
   A. Work habits
   B. Material Safety Data Sheets (MSDS)
   C. Environmental Protection Agency (EPA)
   D. Regulations
   E. Occupational Safety Health Administration (OSHA) regulations
   F. Fire extinguishers and exits

II. Engine Types and Identification
   A. Vertical and horizontal crankshafts
   B. Overhead and non-overhead valves
   C. Single and multicylinder
   D. Parts system and forms

III. Engine Operation and Maintenance
   A. Four stroke theory and applications
   B. Two stroke theory and applications

IV. Disassembly and Inspection
   A. Failure analysis and inspection report
   B. Engine measurement and report form
   C. Parts ordering and obtainment

V. Engine Reconditioning
   A. Cylinder and pistons and connecting rod assemblies
   B. Crankshaft and camshaft assemblies
   C. Valve and valve seat reconditioning
   D. Main bearings and bushings

VI. Engine Assembly
   A. Crankcase, lubrication, and governor assembly
   B. Cylinders and connecting rods, and piston assembly
   C. Valves and cylinder head assembly
   D. Re-coil starting system assembly
   E. Cooling system assembly

VII. Fuel System Assembly
   A. Pulse-a-jet type
   B. Flo-jet type
   C. Vacu-jet type

VIII. Ignition System Assembly
   A. Magneto and point type - theory and operation
   B. Magnetron and electronic type - theory and operation

IX. Mechanical Operation and Testing
   A. Adding oil
   B. Priming carburetor
   C. Troubleshooting procedures
   D. Tuning and adjustments
   E. Maintenance procedures

X. Multicylinder Engines
   A. Mechanical Aspects
   B. Ignition Aspects
   C. Fuel and air Aspects

XI. Overhead Valve (OHV) Engines
   A. Valve train designs
   B. Valve adjustments
      Camshaft configurations