

De Anza College Automotive Technology Program  
COURSE REQUIREMENTS AND GENERAL INFORMATION  
2019-2020  
Auto 94A-F Principles of Four Stroke Cycle Engines

Instructor

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Prerequisites and Advisories

Prerequisite: Approved Automotive Technology Course Sequence Contract  
Advisories: Auto 50A and B, Math 101, Read 91 and Ewrit 200B  
or ESL 4 or LART 200

Text and Required Materials

1. Text: W.G. Lewis Automotive Machining and Engine Repair. Engine Books, 2018 and registration of AERA online training
2. General and engine tool sets
3. Coveralls (2), safety glasses, work shoes
4. Tools – Tool check will be performed after the first six weeks

Student Learning Outcome: After studying the theory of a 4-stroke cycle, internal combustion engine, the student will be able to explain in detail each of the four strokes, valve overlap, and blowdown. This will be done using a cut-away engine.

Attendance

Just as on the job, regular, punctual attendance is required. Always call in if you are going to be absent. The following limits and conditions apply per department policy:

1. Students must record attendance on a time card. Punch in prior to 7:30AM (start of class) and out not before 12:10 (end of class)
  - After two missed days, you will have a consultation with your instructor to help
  - After four missed days in a twelve-week period, you will have a consultation with all three day program instructors. At this time, your overall attendance, including tardies, test scores, and participation in class will be discussed. The instructors will then make a decision about your continued participation in the program. Options can range from steps to help you get to class on time to dismissal from the program.
2. To verify attendance there may be a short (2-3 minutes) quiz every morning. You must be in your seat to take these quizzes. These cannot be made up.

3. Incomplete grades *will* be given in instances of long-term illness or injury. Please schedule family trips during times that school is not in session
4. To drop without penalty, a drop form must be filed by the date specified in the schedule of classes. If anyone is thinking of dropping, please see me first because I will help

#### Classroom and Lab Conduct

1. Students will be dismissed from class for disruptive behavior per college policy
2. Cellular phones must remain off in the classroom *and* lab at all times. Phones can be used for ordering parts with instructor approval, in a designated area. Phone usage has become an epidemic, a fad that has reached its tipping point. I am going to be tough on this in order to fight this epidemic. Please be ready to help me
3. You may be issued an iPad this year for class usage. More information will be given later about the contract for this. These devices will be used for web-based information systems, class notes, and taking pictures and videos in the shop. They are not to be used for social media during class. I will take the device from you, if I see that *Face Book* look on your face. Yes, there is such a look
4. Wear safety glasses, coveralls (snapped-up all the way), and work shoes the duration of labs. In our shop, these will be strongly enforced
5. Food and drink containers must be removed from classroom and shop every day, and must *never* be placed on shop equipment
6. All required tools must remain available for shop activities; basic hand tools cannot be checked from the tool room after the first 6 weeks. Spot checks of tools will be made at random. Borrowing tools from a classmate is not allowed
7. Students are to remain in assigned areas through cleanup. Punch-out only after cleanup is complete. Instructor and shop foreman will determine when clean-up is complete
8. There is one 20-minute break between lecture and lab. The instructor will check roll at start of lab. If you are not back from break in time, I may send you home. Do not leave campus on break. Please do not smoke a doobie on break because the penalty is you will be out of the day program. Please don't tell me about some sort of card, because I don't care
9. It is expected that work will be completed with pride and craftsmanship and that students will perform warranty services if necessary. If overtime is required, consider it the equivalent of homework
10. All shop work must be entered on a repair order, estimated, authorized by the customer and initialed by the instructor. This class is not a hobby-shop class so please don't ask me to do repairs that are not related to class, save them for Friday lab. I reserve the right to "just say no" to such repairs, and I will
11. Quizzes and homework assignments may only be made-up if student called in prior to the absence, no exceptions. There may be either homework or a short quiz everyday, so it is your responsibility to find out from me or a classmate what was missed if you were absent. Late assignments will not be accepted. Please don't ask
12. This year you may have the privilege of working on your own engine as a project.

We will have to schedule these together so as many of you as possible can take advantage of this. Under no circumstances will I agree to *your* deadlines because my job is to teach you the right way, not to give you as much shop time as possible. Even if you tell me you, "I have to have it done by a particular date" my response will be, "I don't care". In order to continue working on your own project, you must do your part by working hard in the classroom. Occasionally, I let students work extra hours on projects. You will not be invited to participate in this if you have not done your part in the classroom

13. When working on cars in the shop, keep radios off and driver's window down. Fender covers must be used as soon as a hood is raised.

### Security

It is understood that the facility and all within is exposed. It is therefore necessary that each and every student assume responsibility for his or her own security and that of other students and the department. We recently had some theft in our building, so we all need to be aware of our surroundings. To this end, observe the following guidelines:

1. Lock your own toolboxes and store them in locked areas.
2. Watch out for fellow students' tools and secure them as well if necessary.
3. Do not allow strangers to roam lab areas. Ask questions and secure unattended lab areas. Remove all valuables from the classroom while we are in the shop.
4. If you unlock a door or cabinet outside of class time, lock it when done.
5. Do not enter the tool room unless accompanied by your instructor.
6. This facility is where I work and you spend many hours attending class. Let's take good care of everything in it.
7. During breaks students are not allowed to "hang" in the parking lot. Either go to the smoking area if you smoke, stay in the building, or go the cafeteria. Groups of students "hanging" in the parking lot does not look professional and will not be tolerated.

### Parking

Parking permits for use in designated areas are available in the Administration Building. Do not park in any shop space. These are reserved for shop activities. Cars parked improperly are subject to citation or will be moved. If you are late, do not park in the shop lot. You are not that special, even though your Mom may tell you so.

### Office hours – Tues-Fri 12:30PM to 1:30PM

As listed above, I will be available in my office for students needing help with course material. This time is for your benefit, so please use it. I am always happy to stay as long as needed. You may also e-mail questions or concerns as I check e-mail obsessively.

### Smoking

Our designated smoking area is just in front of the Science building, period.

### Course Description 94A

Shop operations specific to engine repair and rebuilding including safety and hazardous waste management. Emphasis on theory, diagnosis, disassembly, cleaning, inspection, and failure analysis.

### Course Objectives 94A

1. Demonstrate safe work habits and employ best management practices for hazardous wastes
2. Apply principles of machining to rebuilding operations
3. Measure engine parts using micrometers, dial indicators, and bore gauges
4. Identify fasteners and repair threads
5. Apply engine theory including lubricating and cooling systems to engine diagnosis
6. Diagnose engine condition
7. Disassemble engines and sub-assemblies
8. Select and utilize appropriate parts cleaning processes
9. Perform failure analysis and determine causes of engine failure

### Assignments and Grading 94A

1. Lab tasks from list ----- varies w/ load
2. Reading and chapter quizzes:

Chapter 1	Safety -----	25
1	Hazardous Waste Management -----	25
2	Machining Principles -----	35
3	Measuring Tools -----	35
4	Fasteners -----	25
5	Engine Theory -----	35
6	Engine Diagnosis -----	35
7	Engine Disassembly -----	20
8	Cleaning Engine Parts -----	20
3. Mid term ----- 50
4. Miscellaneous assignments ----- 100

All 'end-of-chapter quizzes' are open notes (not books) so be advised to take notes carefully. Some weekly quizzes will be taken without the use of notes. Actual points may vary slightly from the above due to test revisions. The sum total of points earned are evaluated as follows:

95-100 A	90-94 A-	
87-89 B+	84-86 B	80-83 B-
77-79 C+	70-76 C	
67-69 D+	64-66 D	60-63 D-
59 & ↓	F	

Per department policy, a minimum of "C" is required in courses applied to certificate or degree programs. Because low grades indicate that success is unlikely, grades less than "C" in two courses is cause for dismissal.

