

De Anza College Auto Tech  
COURSE REQUIREMENTS AND GENERAL INFORMATION  
2015-2016  
Auto 64 Automotive Machining and Engine Repair

Instructor

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Auto Tech Tool Room (408) 864-8768

Advisories

Auto50A and B, Math112, Read91 and EWRT100B or ESL4 or LART100

Courses Description

Repair and rebuilding of cylinder head and block components. Includes theory, diagnosis, disassembly, cleaning, inspection, and failure analysis. Preparation for Automotive Service Excellence (ASE) certification examinations in areas A1. Also helpful for AERA certification, which takes the place of M1-M3.

Expected Outcomes

1. Discuss the various machining practices found in automotive machine shops
2. Measure engine parts using micrometers, dial indicators, and bore gauges
3. Identify fasteners and select methods of thread repair
4. Apply engine theory, including lubrication and cooling systems, to engine diagnosis
5. Select appropriate parts cleaning processes
6. Perform failure analysis of valve train components
7. Perform failure analysis of block components
8. Inspect castings and forgings for cracks
9. Inspect engine components, determine wear limits
10. Review methods of straightening and resurfacing cylinder heads
11. Compare and select methods of correcting camshaft and bearing alignment
12. Inspect cylinder head and block decks
13. Describe procedures for reconditioning cylinders, connecting rods, crankshafts, camshafts, and other components
14. Analyze sequences and methods of assembly

Text and Required Materials

1. Required text: Lewis, W.G. Automotive Machining and Engine Repair. 2011, Update 18
2. Notebook
3. Safety glasses for demonstrations

## Assignments and Grading

Reading and quizzes		
1.	Machining -----	20 Pts
2.	Measuring tools -----	25
3.	Fasteners -----	25
4.	Engine theory -----	25
5.	Engine diagnosis -----	35
6.	Cylinder head disassembly -----	15
7.	Cleaning engine parts -----	15
8.	Inspecting valve train components -----	25
9.	Inspecting engine block components -----	25
10.	Reconditioning valve train components -----	35
11.	Reconditioning block components -----	35
12.	Resurfacing heads and blocks -----	35
13.	Engine balancing -----	25
14.	Engine assembly -----	55
15.	Final -----	50

All of these quizzes are open notes (not books) so take notes carefully. Some quizzes may be of the take-home variety. Points may vary slightly from above due to revisions. The total points earned on tests are evaluated as follows (by percentage of the highest score):

A = 90-95	A- = 90-94	
B+ = 87-98	B = 84-86	B- = 80-83
C+ = 77-79	C = 70-76	
D+ = 67-69	D = 64-66	D- = 60-63
F = 59 & lower		

Per department policy, a minimum of "C" is required in courses applied to certificate or degree programs. Grades may be obtained from the registrar approximately ten days after the final exam.

### Outcome

Student should be able to answer selected questions on the final concerning engine theory, valve events, engine diagnostics, and engine assembly.

### Attendance

Always 'call-in' absences. Students are dropped from class on the third absence.

### Tool Room

Check out references and tools as needed. Do not enter the tool room.

### Parking

Parking permits for use in designated areas are available in the Administration Building. Improperly parked cars are subject to citation and/or tow. Do not park

in Auto Tech parking lots, car or motorcycle.

#### 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.
3. Wear safety glasses in the lab during demonstrations.
4. Food and drink containers must be removed from classroom every night, and must never be placed on lab equipment.
5. There is one 20-minute break for meals, then another short break later in the evening.
6. Quizzes and homework assignments may only be made-up if student called in prior to the absence, no exceptions.

#### Smoking

As the result of a November 2004 survey of all students and employees, and the work of a district-wide committee, the Foothill-De Anza Community College District Board of Trustees approved a revised no smoking policy on June 20, 2005. In order to provide a safe learning and working environment for students and employees, smoking is prohibited in all indoor and outdoor campus locations, with the exception of designated parking lots.