

# **COCONINO COMMUNITY COLLEGE**

## **COURSE OUTLINE**

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Status: Permanent

Date: Sept. 2, 2004

A. Identification:

1. Subject Area: Automotive Technology
2. Course Number: AUT 107
3. Course Title: Automotive Engine Short Block Service Lab
4. Credit Hrs: 3
5. Catalog Description:  
Laboratory experiences in engine service and rebuilding; specializing in valve train, cooling, lubricating, exhaust and intake systems. Pre or Co-requisite: AUT 106. Two lecture. Two lab. May be taken for S/U credit.

B. Course Goals:

To provide students with hands-on applications of testing, inspection repair, and replacement of engine parts and systems through laboratory experiences in engine service and rebuilding; specializing in valve train, cooling, lubricating, exhaust and intake systems.

C. Course Outcomes:

Students will:

1. Test cylinder balance using engine analyzer.
2. Test engine using a 4 gas analyzer.
3. Test engine for vacuum leaks.
4. Test for cylinder leakage.
5. Test for compression.
6. Inspect engine for oil leaks.
7. Determine cause for overheating.
8. Inspect engine for noises.
9. Inspect and test cooling system for coolant loss.
10. Test coolant.
11. Remove and replace motor mounts.
12. Remove and replace oil pump.
13. Remove and replace intake manifold.
14. Remove and replace and time distributor and wires.
15. Remove and replace cylinder head(s).
16. Rebuild cylinder head.
17. Remove and replace valve springs.
18. Remove and replace valve stem seats.
19. Remove and replace head gasket.
20. Remove and replace thermostat.
21. Remove and replace fan belts.
22. Remove and replace water pump.
23. Remove and replace radiator.
24. Repair minor leak in radiator.
25. Reverse flush cooling system.
26. Remove and replace oil pan.
27. Remove and replace valve cover gasket.
28. Remove and replace distributor seal.
29. Remove and replace fuel pump.
30. Install insert in sparkplug hole (heli-coil).

31. Remove and replace exhaust manifold gasket.
32. Remove and replace intake manifold gasket.
33. Remove and replace clutch fan.
34. Remove and replace electric fan.
35. Remove and replace radiator hose.
36. Remove and replace heater hose.
37. Check radiator overflow system.
38. Test radiator cap.
39. Check coolant temperature sensor.
40. Remove and replace catalytic converter and muffler.
41. Remove and replace tailpipe.
42. Inspect and test positive crankcase ventilation system.
43. Remove and replace exhaust manifold.
44. Adjust valves.

D. Course Content:

Will include:

1. Automotive Shop Safety
2. Instruction on the above automotive shop procedures