

ASEP-150-GM ENGINES & RELATED SYSTEMS 4 CREDITS

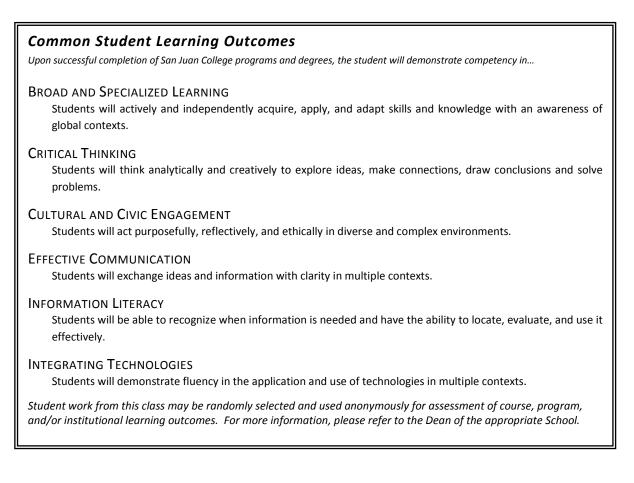
SYLLABUS

CATALOG DESCRIPTION

This course covers the principles and operation of the General Motors internal combustion engine. Gasoline and diesel engines will be properly disassembled with nomenclature identification. All parts will be inspected, measured, and reassembled. The operation and repair of the oiling and cooling system will also be covered. Troubleshooting and diagnostic procedures will be emphasized on all systems.

Prerequisites: None

Semester Offered: Summer



Course Learning Outcomes

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

1. Demonstrate safe procedures for engine service.

- 2. Demonstrate knowledge of gasoline engine operating principles.
- 3. Identify various under-hood lubricants and their usage.
- 4. Perform an engine oil pressure test.
- 5. Locate and repair engine oil leaks.
- 6. Disassemble and assemble V type and in-line engine designs.
- 7. Identify various engine sealants and their applications.
- 8. Measure crankshaft rod and main journals for taper and out-of-round.
- 9. Measure crankshaft end play with a dial indicator.
- 10. Plasti-gage main and rod bearings.
- 11. Measure cylinder walls for taper and out of round and fit pistons.
- 12. Deglaze cylinder walls.
- 13. Install piston rings and check ring gap clearances.
- 14. Remove cylinder ridge.
- 15. Remove and install camshaft bearings.
- 16. Time camshaft(s) to crankshaft.
- 17. Inspect timing chains, gears, and belts for wear and stretch.
- 18. Inspect oil pump & lubrication system.
- 19. Perform a complete valve job.
- 20. Inspect valve train and guides per manufacturer procedure.
- 21. Remove and replace core plugs.
- 22. Diagnose engine noises such as piston slap, rod knock, carbon build–up and valve noise.
- 23. Adjust hydraulic and solid lifters.
- 24. Demonstrate competency in using engine overhaul tools.
- 25. Remove and install front wheel and rear wheel drive engines.
- 26. Remove and install valve covers in the vehicle.
- 27. Remove and install cylinder heads in the vehicle.
- 28. Remove and install intake manifold in the vehicle.
- 29. Pressure test the cooling system & diagnoses coolant loss.
- 30. Remove and replace hoses, radiators, and cooling fan.
- 31. Remove and replace a water pump.
- 32. Remove, inspect, and replace a thermostat.

Course Learning Outcomes

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

- 1. To prepare the student for competence in repairing or rebuilding modern engines.
- 2. Completion of 100% of NATEF priority 1 tasks.
- 3. Completion of 85% of NATEF priority 2 tasks.
- 4. Completion of 75% of NATEF priority 3 tasks.