



South Central College

AST 1311 Engine Diagnosis

Course Outcome Summary

Course Information

Description	This course covers engine diagnosis using various types of test equipment. The course focuses on developing the skills needed to diagnose and analyze basic engine problems. Prior knowledge gained by the successful completion of AST1712 is required for student success in this course. (1 lab credit)
Total Credits	1
Total Hours	32

Types of Instruction

Instruction Type	Credits/Hours
Lab	

Pre/Corequisites

Admission to the Automotive Service program

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Exhibit professionalism and demonstrate proper shop safety procedures

Learning Objectives

Demonstrate professional conduct, act responsibly and accept responsibility for the successful and timely completions of assignments
Identify and follow all shop safety procedures

2. Explain various engine diagnostic methods and procedures

Learning Objectives

Research applicable vehicle and service information, such as internal engine operation, vehicle service history, service precautions, and technical service bulletins.
Explain the engine vacuum test, cylinder balance test, compression test, and cylinder leakage test
Describe oil pressure testing and cooling system testing

3. Demonstrate engine diagnostic procedures

Learning Objectives

Verify and analyze engine concerns - determine necessary action
Perform a visual inspection, check for fuel, oil and coolant leaks - determine necessary action
Diagnose engine noises and vibrations - determine necessary action
Perform engine vacuum tests, cylinder balance test, cranking and running compression tests and cylinder leakage test - determine necessary action
Perform and oil pressure test; perform cooling system pressure tests; check coolant condition; inspect and test radiator, pressure cap, coolant recovery tank, and hoses - determine necessary action
Diagnose cause(s) of excessive oil consumption, coolant consumption, unusual exhaust color and odor - determine necessary action
Evaluate and analyze engine problems and mechanical condition - determine necessary action
Inspect, replace, and adjust drive belts, tensioners, and pulleys; check pulley and belt alignment.
Inspect and replace engine cooling and heater system hoses. Inspect, test, and replace thermostat and gasket/seal. Test coolant; drain and recover coolant; flush and refill cooling system with recommended coolant; bleed air as required.
Identify causes of engine overheating.

4. Demonstrate engine removal procedures

Learning Objectives

Remove and reinstall engine in an OBDII or newer vehicle; reconnect all attaching components and restore the vehicle to running condition.
Remove and replace radiator.

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.