

SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES & SKILLED TRADES DIVISION
AUTOMOTIVE STUDENT SERVICE EDUCATIONAL TRAINING (ASSET)
COURSE SYLLABUS
September 10, 2025

I. CATALOG DESCRIPTION

Course Number: ASST2364
Course Title: Ford Steering & Suspension, Engine Repair & Diesel Systems
Prerequisite(s): ASST1111 & ASST1116

Catalog Description: Study of the principles of operations, disassembly procedures, and repair of Ford steering and suspension systems, including four-wheel alignment. Operation and construction of Ford gas and diesel engines. Techniques and skills for testing and diagnosis of engine mechanical condition. Cylinder head reconditioning, complete disassembly, inspection, measurement and reassembly of Ford gas and diesel engines. Accuracy of measurements, repair decision and procedures involving correct and safe engine removal and installation. Study of operation, diagnosis, and service of diesel mechanical, electronic and emission systems on late-model Ford vehicles.

Credit Hour: 6.0
Class Hours: 38
Lab Hours: 158
Total Contact Hours: 196

II. COURSE OBJECTIVES: *Course will:*

- A.** Cover theory, operation and service of the steering and suspension systems.
- B.** Cover basic engine construction.
- C.** Cover physical principles and operation of two- and four-cycle engines.
- D.** Cover principles of single and multiple cylinder engines.
- E.** Cover basic ignition, fuel, lubrication, cooling and valve train systems.
- F.** Cover engine inspection, precision measurement and assembly.
- G.** Cover theory and operation of Ford's diesel fuel system.
- H.** Cover repair and diagnosis Ford diesel engines.
- I.** Cover diesel emission control and repair.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES: *The student will be able to:*

1. Demonstrate an understanding of the steering and suspension system components.
2. Demonstrate an understanding of alignment angles.
3. Explain the theory and functions of various types of two- and four-cycle engines and their components currently used in the automotive industry.
4. Explain how the ignition system, fuel system, lubrication system, and cooling system are incorporated into the internal combustion engine used in the automotive industry.
5. Correctly identify components of the internal combustion automotive engine and explain the function of each component.
6. Explain and demonstrate the proper procedure for basic engine timing.

7. Explain and demonstrate the procedure for engine component inspection.
8. Explain the procedures for preparation, performance and analysis of the lubrication, cooling and valve train systems.
9. Interpret technical information found in technical manuals and textbooks as they pertain to the internal combustion engine.
10. Explain the service procedures for other basic engine testing procedures and inspections.
11. Understand the operation of the diesel engine.
12. Use the Service Manual to aid in diagnosis.
13. Gain technical understanding of the diesel fuel system. The student will be able to check and service the fuel system components.
14. Gain technical understanding of the diesel emission system. The student will be able to check and service emission control devices.
15. Diagnose abnormal engine operation.

B. GENERAL LEARNING OUTCOME:

GELO #3: Critical Thinking & Problem Solving

Outcome:

1. Collect, identify, interpret and analyze data.

IV. CONTENT/UNIT OF INSTRUCTION

- A. Theory operation and service of steering and suspension systems and alignment
- B. Engine principles
- C. Cylinder head and valve train
- D. Cylinder block
- E. Ford service manual
- F. Gaskets and seals
- G. Shop safety
- H. Disassembly diagnosis
- I. Cylinder head removal
- J. Cylinder head general service
- K. Valve guide service and valve
- L. Hydraulic lifter and camshaft
- M. Timing chain, gears, and belt
- N. Assemble (head to block)
- O. Cylinder block
- P. Engine removal
- Q. Engine disassembly, inspection, and cleaning
- R. Cylinder reconditioning
- S. Piston rings
- T. Pistons
- U. Rods, bearing, and oil pump
- V. Crankshaft
- W. Engine assembly
- X. Engine installation
- Y. Cooling system
- Z. Ford engines
- AA. Product service training
- BB. Diesel engine principles
- CC. Diesel fuel system
- DD. Diesel emissions systems diagnosis

V. INSTRUCTIONAL MATERIALS

The course information document lists the current text(s) required for this class. The list is also available in the campus bookstore. The course information document also lists the tools/equipment or other supplies required for this class.

VI. METHODS OF PRESENTATION / INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Small and large group discussion
3. Video presentation
4. Transparencies
5. Demonstrations
6. Project boards
7. Flip charts
8. Handouts
9. Observations
10. Assigned lab projects
11. Field trips

VII. METHODS OF EVALUATION

A. The methods of evaluation typically include a combination of the following:

1. Pre-test
2. Quizzes
3. Lab exercises
4. Homework
5. Daily evaluation of completed projects
6. Post-Test
7. Attendance: Punctual and regular attendance is required as stated in the student handbook or class outline.

Letter grades will be based on the SCC Standard Grade Scale Policy. **Note:** See course information document for specific details on how the course grades will be calculated.

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must:

1. Complete all tests, projects, assignments, and notebook (if required).
2. Earn a final grade of 70% (2.0) or higher to progress in the program.

B. Attendance:

1. Student must follow the Attendance Policy as stated in the college student handbook, automotive lab and classroom policies handbook or Course Information Document.

C. Shop safety rules will be followed.

D. Any additional course requirements as stipulated by the Instructor.