

**SOUTHEAST COMMUNITY COLLEGE
TRANSPORTATION OCCUPATIONS
AUTOMOTIVE TECHNOLOGY
COURSE SYLLABUS
January 24, 2023**

I. CATALOG DESCRIPTION

Course Number: AUTT2201
Course Title: Engine Repair
Prerequisite(s): AUTT1111, AUTT1116

Catalog Description: Removal/installation, disassembly/reassembly, and machining operations for engine service and repair.

Credit Hour: 5 .5
Classroom Hours: 30
Lab Hours: 158
Total Contact Hours: 188

II. COURSE OBJECTIVES: *Course will:*

- A. Cover engine service and repair procedures.
- B. Cover component inspection.
- C. Cover engine identification.
- D. Cover engine measurements.
- E. Cover engine leaks.
- F. Cover removal and disassembly of the automotive engine.
- G. Cover valve timing.
- H. Cover engine mounting.
- I. Cover machining operations of the automotive engine.
- J. Cover camshafts.
- K. Cover block service and assembly.
- L. Cover crankshaft service.
- M. Cover cylinder head service.
- N. Cover piston and connecting rod.
- O. Cover lubrication systems.
- P. Cover gaskets, seals and sealants.
- Q. Cover installation of the engine.
- R. Cover adjustment and break-in of the automotive engine.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

- 1. Verify operation of the instrument panel engine warning indicators.
- 2. Inspect engine assembly for fuel, oil, coolant and other leaks; determine necessary action.
- 3. Demonstrate the correct service procedures in the removal of engines from the vehicle

chassis, mount engine on stand, and remove of accessories.

4. Verify valve timing on an engine.
5. Remove, inspect and service a cylinder head.
6. Inspect and measure valve and valve guides and determine necessary action.
7. Inspect and measure crankshaft and determine necessary action.
8. Inspect and measure piston and connecting rod and determine necessary action.
9. Explain proper diagnosis and service procedures for engine mounts.
10. Perform necessary machine operations on the engine.
11. Demonstrate how to bore and/or hone a cylinder block to specifications.
12. Demonstrate the correct procedures for the inspection, service and verification of the lubrication system.
13. Perform the required operations for cleaning and inspection of the block.
14. Demonstrate the correct procedure for gasket and seal installation
15. Perform the correct procedures for the re-installation of the engine into the vehicle.
16. Demonstrate the correct procedures for the adjustment and performing break-in procedures of the engine.

B. GENERAL EDUCATION LEARNING OUTCOMES

GELO #3: Critical Thinking & Problem Solving

1. Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

- A. Engine leaks
- B. Removal and disassembly of the automotive engine
- C. Engine mounts
- D. Machining operations of the automotive engine
- E. Camshafts
- F. Block service and assembly
- G. Crankshaft servicing
- H. Piston and connecting rod
- I. Lubrication systems
- J. Gaskets, seals and sealants
- K. Installation of the engine
- L. Adjustment and break-in of the automotive engine

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. Demonstrations
5. Project boards
6. Handouts
7. Observations
8. Assigned lab projects
9. Online information

10. Field trips

VII. METHODS OF EVALUATION

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

1. Notebook (if required)
2. Quizzes
3. Tests
4. Lab grades
5. Attendance/class conduct

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).

B. Attendance:

1. Students 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.