

**CUYAMACA COLLEGE**  
**COURSE OUTLINE OF RECORD**

**AUTOMOTIVE TECHNOLOGY 203 – ASEP–ENGINE REPAIR**

3 hours lecture, 4.5 hours laboratory, 4.5 units

**Catalog Description**

General Motors ASEP course to include diagnosis of engine failures, engine removal and disassembly techniques, engine cleaning and measuring practices, machining principles, and assembly procedures in car repairs. Engine design theory will be discussed. Preparation for ASE and GM certification.

**Prerequisite**

None

**Course Content**

- 1) Lecture
  - a. Introduction and safety
  - b. Equipment operation
  - c. Engine systems
  - d. Engine failure diagnosis
  - e. In-vehicle repair
  - f. Engine removal
  - g. Engine disassembly
  - h. Precision measuring devices
  - i. Cleaning and inspecting of parts
  - j. Cylinder head diagnosis and repair
  - k. Engine assembly and installation
- 2) Lab
  - a. Introduction and safety
  - b. Laboratory procedures
  - c. Equipment operation
  - d. Engine removal
  - e. Disassembly procedures
  - f. Cleaning procedures
  - g. Part inspection and measurement
  - h. Cylinder head and valve servicing
  - i. Assembly procedures
  - j. Engine installation
  - k. Pre-oiling and start-up procedures

**Course Objectives**

Students will be able to:

- 1) Demonstrate standardized safety and hazardous waste handling practices.
- 2) Apply engine operating theory to diagnosis of engine problems.
- 3) Perform engine repairs to prescribed industry standards.
- 4) Utilize required tools and equipment to diagnose engine noise and mechanical problems.
- 5) Demonstrate proper procedures used to remove and install an engine.
- 6) Use prescribed industry standards to correctly disassemble and reassemble an automotive engine.
- 7) Utilize proper tools to measure all critical engine components for size and wear.

- 8) Follow prescribed industry standards to utilize specialized engine machining equipment to repair engine block and cylinder head components.
- 9) Follow prescribed industry standards to diagnose, inspect and repair lubrication system components.
- 10) Utilize manufacturer's repair information and technical service bulletins for accurate diagnosis and repair.

### **Method of Evaluation**

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Quizzes, written exams, and hands-on performance exam that measure students' ability to safely identify necessary action or repair, diagnose and measure engine components, and perform necessary tasks related to engine repair.
- 2) Practical exercises that measure students' progress toward mastering tasks related to diagnosis, replacement, repair, testing and adjustment of engine related systems and components.
- 3) Skills-based summative assessment that measures students' ability to successfully complete the necessary NATEF tasks related to diagnosis, replacement, repair, testing and adjustment of engine systems and components.

### **Special Materials Required of Student**

- 1) Mechanic's hand tool set
- 2) Approved safety glasses
- 3) Specialized engine repair tools

### **Minimum Instructional Facilities**

- 1) Auto tech lab (6 bays)
- 2) Smart classroom
- 3) Various training vehicles and engines
- 4) Engine assembly room

### **Method of Instruction**

- 1) Lecture and demonstration
- 2) Individual assistance

### **Out-of-Class Assignments**

- 1) Reading assignments
- 2) Writing assignments

### **Texts and References**

- 1) Required: To be supplied by the GM ASEP Curriculum Committee
- 2) Supplemental: None

### **Student Learning Outcomes**

Upon successful completion of this course, students will be able to:

- 1) Demonstrate standardized safety and hazardous waste handling practices using assigned lab sheets and hands-on testing.
- 2) Apply engine operating theory to diagnose and repair engine related mechanical problems using assigned lab sheets and hands-on testing.
- 3)