Lecture Contact Hours: 48-54; Homework Hours: 96-108; Total Student Learning Hours: 144-162

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

AUTOMOTIVE TECHNOLOGY 099 – INTRODUCTION TO AUTOMOTIVE TECHNOLOGY

3 hours lecture, 3 units

Catalog Description
This course presents a basic overview of information about automotive systems. This course serves as a recommended preparation course for students interested in the Automotive Technology major, or for students who want to gain knowledge about vehicle servicing and repair. This course is complemented by AUTO 100L Laboratory where students are able to perform minor inspections, tests, and services to training vehicles using the department laboratory.

Prerequisite
None

Course Content
1) Introduction and safety
2) History of automotive technology
3) Four-stroke cycle engine operation
4) Engine construction
5) Engine lubrication
6) Engine cooling system
7) Diesel engine principles
8) Fuel supply systems
9) Forced air injection
10) Electricity and electronics
11) Starting and charging systems
12) Ignition systems
13) Brakes
14) Chassis and suspension
15) Transmission and drivelines
16) Tires and wheels
17) Emission controls
18) Fuel Injection
19) Introduction to Hybrid and Electric Vehicles
20) Introduction to career opportunities in the automotive industry

Course Objectives
Students will be able to:
1) Demonstrate standardized safety and hazardous waste handling practices.
2) Identify the major automotive systems and describe how they work and interrelate to each other.
3) Classify the various types of automotive employment opportunities in the transportation industry, and demonstrate the ability to apply for an entry level job.

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) In-class activities that demonstrate students' ability to describe and adhere to basic safety and hazardous materials practices.
2) Written exams and practical exercises that measure students' ability to recognize basic automotive system components and explain how they interactively work together.
3) Quizzes and/or written assignments that measure students' ability to distinguish between the different types of automotive repair businesses.
4) Performance project that demonstrates knowledge and abilities to construct a replica of an actual automobile, or propose a project approved by the instructor that demonstrates knowledge and abilities to construct and describe art relating to a principle or principles from the course objectives.
5) Communication with the manager of an automotive related business about the job opportunities available based on experience and qualifications.

Special Materials Required of Student
1) Model car kit, 1/24 scale, skill level 1 or 2, assembly glue and paint also required, or other materials such as: clay, paint, metal, car parts, electronics, pencil, and paper.
2) Students are required to have access to a computer or electronic device. The course content requires the use of the College learning management system, and web based learning modules.

Minimum Instructional Facilities
1) Smart classroom
2) Various training models
3) College learning management system

Method of Instruction
1) Lecture and demonstration
2) Learning modules

Out-of-Class Assignments
1) Reading assignments
2) Written homework
3) Web based assignments

Texts and References
1) Required (representative example): CDX Master Automotive Technician Series, 2020, **ISBN:** 9781284102093
2) Supplemental: Web based learning modules, reading assignments, and formative quizzes

Exit Skills
Students having successfully completed this course exit with the following skills, competencies and/or knowledge:
1) Identify various fasteners used in automobiles.
2) Describe the purpose and use of tools and measuring devices used in the automotive repair field.
3) Describe the inter-relationship of the various automotive systems.

Student Learning Outcomes
Upon successful completion of this course, students will be able to:
1) Demonstrate standardized safety and hazardous waste handling practices.
2) Identify the major automotive systems and describe how they work and interrelate to each other.
3) Communicate with an employer in the transportation industry about the opportunities available for employment.