

**AUTO 80 Course Outline as of Spring 2021****CATALOG INFORMATION**

Dept and Nbr: AUTO 80 Title: INTRO AUTOMOTIVE TECH

Full Title: Introduction to Automotive Technology

Last Reviewed: 2/24/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	8	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

Introduction to theory of operation, routine maintenance, technical vocabulary, components, systems, use of basic tools and safety procedures relating to the automobile and the automotive repair technician. Workplace skills covered will include the basic maintenance and repair of the automobile and its systems for the entry level auto maintenance technician.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100 or equivalent

**Limits on Enrollment:****Schedule of Classes Information:**

Description: Introduction to theory of operation, routine maintenance, technical vocabulary, components, systems, use of basic tools and safety procedures relating to the automobile and the automotive repair technician. Workplace skills covered will include the basic maintenance and repair of the automobile and its systems for the entry level auto maintenance technician. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100 or equivalent

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>	Transferable	Effective: Fall 2014	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Demonstrate the correct use of basic tools and safety procedures utilized by an automotive repair technician.
2. Apply with proficiency the basic maintenance procedures and repair operations of the automobile and its systems.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Apply safety standards and practices in an auto shop environment.
2. State the theory behind the operation of all of the basic systems on an automobile.
3. Describe and identify the components used in those systems.
4. Demonstrate a working knowledge of the basic operation of all major automobile systems.
5. Describe the environmental issues involved with automotive repair and apply appropriate procedures concerning disposal of hazardous material from the automobile when repairing or disposing of the vehicle.
6. Identify and properly use and care for tools and equipment.
7. Identify metric and standard tool sizes and purposes
8. Discuss the automotive industry and identify related employment opportunities.

### **Topics and Scope:**

- I. Automotive Background and Overview
  - A. Careers in the Automotive Service Industry
  - B. Starting a Career in the Automotive Industry
  - C. Working as a Professional Service Technician
  - D. Technician Certification

## II. Shop Fundamentals

- A. Shop Safety
- B. Environmental and Hazardous Materials
- C. Fasteners and Thread Repair
- D. Hand Tools
- E. Power Tools and Shop Equipment
- F. Measuring Systems and Tools - English and Metric
- G. Service Information

## III. Engine Fundamentals

- A. Vehicle Identification and Emission Ratings
- B. Gasoline Engine Operation
- C. Diesel Engine Operation
- D. Engine Lubrication and Cooling Systems
- E. Under-Hood Inspection
- F. Vehicle Lifting and Hoisting
- G. Lube-Oil and Filter Service

## IV. Electrical Fundamentals

- A. Electrical Circuits
- B. Circuit Testers and Digital Meters
- C. Starting and Charging Systems

## V. Electronic Accessories

- A. Dash Warning Lights and Driver Information Systems
- B. Lighting Systems
- C. Safety Belts and Airbag Systems
- D. Heating and Air Conditioning Systems

## VI. Electronics, Performance and Emissions

- A. Gasoline and Alternative Fuels
- B. Computers and Sensors
- C. Ignition System
- D. Fuel-Injection Systems
- E. Emission Control Devices
- F. Hybrid Electric Vehicles
- G. Scan Tools and Diagnostic Procedures

## VII. Brakes and Inspection

- A. Tires and Wheels
- B. Brakes and Antilock Braking Systems
- C. Suspension and Steering Systems

## VIII. Drive Line

- A. Manual Transmissions/Transaxles
- B. Automatic Transmissions and Transaxles

All topics are covered in the lecture and lab portions of the course.

### **Assignment:**

#### Lecture-Related Assignments:

1. Reading, approximately 10 - 25 pages per week
2. Worksheets from reading assignments
3. Notebook with handouts and class notes
4. Tests and final exam

#### Lab-Related Assignments:

## 1. Lab assignments with worksheets

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Notebook

Writing  
0 - 5%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Worksheets from reading assignments

Problem solving  
5 - 10%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Lab assignments with worksheets

Skill Demonstrations  
10 - 15%

**Exams:** All forms of formal testing, other than skill performance exams.

Tests and final exam

Exams  
70 - 75%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Participation

Other Category  
0 - 5%

### Representative Textbooks and Materials:

Fundamentals of Automotive Technology. 2nd ed. VanGelder, Kirk. Jones and Bartlett. 2018