AUTO 010: INTRODUCTION TO AUTOMOTIVE TECHNOLOGY

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Originator
dredman

Justification / Rationale
Corrected total units from: 3 to: 4 units

Effective Term
Fall 2023

Credit Status
Credit - Degree Applicable

Subject
AUTO - Automotive Technology

Course Number
010

Full Course Title
Introduction to Automotive Technology

Short Title
INTRO AUTO TECH

Discipline

Disciplines List
Automotive Technology

Modality
Face-to-Face
Hybrid

Catalog Description
This course provides an overview of the major components and systems found on modern automobiles. The course includes an overview of the automotive industry, shop safety, hand tools usage, basic theory of major automobile systems and basic vehicle maintenance and service. C-ID: AUTO 110X

Schedule Description
This class provides an overview of automotive theory and service procedures including lecture/discussion and hands on experience understanding and servicing fundamental automotive components and systems.

Lecture Units
3

Lecture Semester Hours
36

Lab Units
1

Lab Semester Hours
54

In-class Hours
90

Out-of-class Hours
72

Total Course Units
4
Total Semester Hours
162

Required Text and Other Instructional Materials

Resource Type
Book

Author
Stockel

Title
Auto Fundamentals

Edition
12th

Publisher
Goodheart Wilcox

Year
2020

College Level
Yes

Flesch-Kincaid Level
12

ISBN #
9781635638622

Class Size Maximum
26

Course Content
1. Orientation, vehicle service information
2. Introduction to the automobile industry
3. Shop safety and environmental protection
4. Fasteners and gaskets
5. Tools and shop equipment
6. Service data
7. Engine overview: operation, construction, lubrication, cooling, exhaust
8. Fuel and ignition systems overview
9. Electrical system overview
10. Braking system overview
11. Steering and suspension system overview
12. Preventative maintenance
13. Automotive industry web-based training modules

Lab Content
Demonstrate understanding of the following practices and systems through a series of hands-on activities:
1. Properly complete Repair Order including research of various service information, TSBs, and time studies, as well as explaining the repair order to a customer.
2. Shop safety & Environmental Protection: Instructor-led demonstrations, demonstration of proficiency with lifting a vehicle, proper handling of spills, properly disposing of waste oils, proper use of tools and equipment.

3. Fasteners and gaskets: demonstration of proper torque and gasket prep with servicing tires and wheels as well as oil changes.
4. Identification of general operating systems.
5. Engine overview. Identify various engine systems and describe the function and operation of key engine related parts.
6. Fuel and ignition systems overview: Read codes using scan tool. Perform maintenance of filters, and spark plugs.
7. Electrical system overview: Test Battery. Perform basic maintenance of belts and cables. Remove and replace battery.
8. Braking system overview: Perform brake system inspection, service and light repair.
9. Steering and suspension system overview: inspect system for damaged or worn parts. Perform maintenance and service of wearable components.
10. Basic to intermediate preventative maintenance.

Course Objectives

	Objectives
Objective 1	Describe shop safety practices and proper procedures regarding handling hazardous material.
Objective 2	Explain the importance of and Identify basic automotive tools and equipment.
Objective 3	Perform a chassis lubrication, and change oil and filter.
Objective 4	Explain and demonstrate tire rotation.
Objective 5	Locate and analyze applicable vehicle service specifications and procedures using the latest online service information.
Objective 6	Properly complete a repair order including all pertinent information and compliant, cause and correction.
Objective 7	Properly position and lift a vehicle using a floor jack and jack stands and a vehicle hoist.
Objective 8	Identify and describe the purpose of the following components and systems: engine, suspension, braking system, fuel system, ignition system, electrical system and steering system.
Objective 9	Perform a detailed vehicle inspection.
Objective 10	Verify proper fill and type for all fluids on the automobile.
Objective 11	Properly connect a digital multimeter and read volts, amps and ohms on a basic electrical circuit.
Objective 12	Explain the importance of and maintain a clean working environment.
Objective 13	Locate and interpret key vehicle identification information.
Objective 14	Test drive a vehicle to verify the concern and the repair.
Objective 15	Explain the importance of and display the importance of teamwork.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Describe components, function, and operation of basic automotive systems including: electrical, brakes, suspension, and engines.
Outcome 2	Demonstrate proficiency in performing a typical 7,500 mile service consisting of an engine oil change, tire rotation, and vehicle inspection.
Outcome 3	Model proper vehicle repair order completion given a vehicle in need of basic maintenance, filters, and fluids.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Discussion	Provide feedback during discussions and active involvement in assignments in class.
Collaborative/Team	Respectful, active interaction in group activities in class and lab.
Technology-based instruction	Use of state-of-the-art scan tools, service information, equipment and virtual reality in class and lab.
Lecture	Lectures will stimulate discussion and learning on theoretical and knowledge-based material.
Laboratory	Perform assigned laboratory tasks involving vehicles, equipment, and service information.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	As assigned after each in class session.	In and Out of Class
Student participation/contribution	Provide feedback during discussions and active involvement in assignments in class and lab.	In and Out of Class
Mid-term and final evaluations	Cumulative midterm and final with a hands-on portion.	In and Out of Class
Tests/Quizzes/Examinations	Periodic quizzes based on in class discussions.	In and Out of Class
Group activity participation/observation	Respectful, active interaction in group activities in class and lab.	In and Out of Class
Laboratory projects	The lab activities will require hands-on, live or simulated vehicle in a live or simulated setting.	In Class Only

Assignments

Other In-class Assignments

1. Review homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
2. Begin 3 SP2 safety tests.
3. Notes on lecture.
4. Participation in discussion related to topic of lecture.
5. Review and discuss vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
6. Must develop teamwork skills through classroom interaction and discussion.

Other Out-of-class Assignments

1. Readings from required text: 1-3 chapters per week from both classroom and shop manuals.
2. Homework from required text: multiple-choice questions, fill in the blank and essay questions to be graded each week.
3. Completion of 3 SP2 safety tests.
4. Assigned readings and written summaries from selected instructor handouts.
5. Written summaries and analysis of assigned websites.
6. Must complete a course project consisting of an essay describing, analyzing and summarizing a selected topic, including out of class research and fieldwork.
7. Vehicle diagnosis, troubleshooting and repair of personal, shop and other vehicles to be evaluated by the instructor during lab time.
8. Hands-on lab worksheets matching each course objective. These will be graded by the instructor throughout the semester during lab time.
9. Must develop teamwork skills through lab activities and assigned special projects.
10. Automotive industry web-based training modules.

Grade Methods

Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

50

On-campus %

50

Lab Courses

How will the lab component of your course be differentiated from the lecture component of the course?

The lab activities require hands-on, live vehicles or equipment. There is physical interaction with the vehicles and the learner based on service procedures and required equipment.

From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?
The facilitator will supervise all lab content, guiding the learner in productivity and understanding.

How will you assess the online delivery of lab activities?
Laboratory activities will not be delivered in the online setting, only in person.

Instructional Materials and Resources

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?
SP2 - free account provided to all used to ensure the learners ability to distinguish safe working practices and conditions from unsafe practices and conditions.

If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.
SP2 online safety training.

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:
Discussion forums with substantive instructor participation
Online quizzes and examinations
Regular virtual office hours
Timely feedback and return of student work as specified in the syllabus
Weekly announcements

External to Course Management System:
Direct e-mail
Synchronous audio/video
Telephone contact/voicemail

For hybrid courses:
Field trips

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.
Regular effective contact will be practiced through online lecture, discussion board postings, email communications, regular announcements, prompt grading and feedback of assignments, and virtual office hours. This contact between the facilitator and learner on a regular basis will enhance learner confidence and understanding and promote critical thinking and analyzation of subject matter.

If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.
Interaction between instructor and learner will help to enhance learning and understanding of subject material.

Other Information

Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.
With the uncertainty of the teaching environment, enabling the lecture portion of this course to be delivered in an online setting, while keeping the hands-on portion face-to-face, will ensure learners can access needed training to ensure knowledge and experience is achieved to gain employment in the automotive field.

MIS Course Data

CIP Code
47.0604 - Automobile/Automotive Mechanics Technology/Technician.

TOP Code
094800 - Automotive Technology

SAM Code
C - Clearly Occupational

Basic Skills Status
Not Basic Skills

Prior College Level
Not applicable

Cooperative Work Experience
Not a Coop Course

Course Classification Status
Credit Course

Approved Special Class
Not special class

Noncredit Category
Not Applicable, Credit Course

Funding Agency Category
Not Applicable

Program Status
Program Applicable

Transfer Status
Transferable to CSU only

General Education Status
Y = Not applicable

Support Course Status
N = Course is not a support course

C-ID
AUTO 110 X

Allow Audit
Yes

Repeatability
No

Materials Fee
No

Additional Fees?
No

Approvals

Curriculum Committee Approval Date
3/17/2022

Academic Senate Approval Date
3/24/2022

Board of Trustees Approval Date
4/22/2022

Chancellor's Office Approval Date
5/06/2022

Course Control Number

CCC000631388

Programs referencing this course

Automotive Air Conditioning Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=104)
Automotive Electrical Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=105)
Automotive Emissions Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=106)
Automotive Engine Management Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=107)
Automotive Transmission Axle Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=108)
Automotive Braking Systems Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=109)
Automotive General Service Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=110)
Automotive Light and Medium Duty Diesel Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=111)
Automotive Steering, Suspension, Alignment Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=112)
Hybrid, Fuel Cell, Electric Vehicle Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=198)
Automotive Introductions Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=201)
Advanced Transportation Technologies AS Degree (http://catalog.collegeofthedesert.eduundefined/?key=44)
Advanced Transportation Technologies AS Degree (http://catalog.collegeofthedesert.eduundefined/?key=45)
Automotive Technology AS Degree (http://catalog.collegeofthedesert.eduundefined/?key=57)
Automotive Alternative Fuels Certificate of Achievement (http://catalog.collegeofthedesert.eduundefined/?key=82)