

AUTO 045A: INTRO TO ALTERNATIVE FUEL VEHICLES

Originator

doanderson

Co-Contributor(s)**Name(s)**

Redman, Douglas

Justification / Rationale

The Automotive Faculty are reviewing and/or updating this course to assure compliance with local, State, and Federal regulations; support consistency within the curriculum; practice relevance regarding automotive industry and community; and to make improvements that will strengthen the learning environment this course creates thus benefiting the learners.

Effective Term

Fall 2022

Credit Status

Credit - Degree Applicable

Subject

AUTO - Automotive Technology

Course Number

045A

Full Course Title

Intro to Alternative Fuel Vehicles

Short Title

INTRO ALT FUEL VEHI

Discipline**Disciplines List**

Automotive Technology

ModalityFace-to-Face
100% Online**Catalog Description**

This course provides an overview of the major alternative fuel vehicles available to the transportation industry. The course includes a brief history of alternative fuels, an overview of alternative fuels including an analysis of the pros and cons of each fuel and discussions on whether an alternative fuel vehicle is right for you. It is an essential course for those interested in an alternative fuel certificate or degree.

Schedule Description

This course includes a brief history of alternative fuel, an overview of alternative fuels including an analysis of the pros and cons of each fuel vehicle type.

Lecture Units

2

Lecture Semester Hours

36

Lab Units

0

In-class Hours

36

Out-of-class Hours

72

Total Course Units

2

Total Semester Hours

108

Required Text and Other Instructional Materials**Resource Type**

Book

Author

Nation Research Council,

Title

Transitions to alternative vehicles and fuels

City

Washington, D.C

Publisher

National Academies Press

Year

2013

College Level

Yes

Flesch-Kincaid Level

13.3

ISBN #

9780309268523

For Text greater than five years old, list rationale:

This text reflects the current State targets for emissions reduction and zero emissions vehicle projections.

Class Size Maximum

30

Course Content

1. History of alternative fuels
2. Benchmark fuels: gasoline/diesel overview
3. E85 description; comparison
4. Biodiesel description; comparison
5. Propane description; comparison
6. CNG/LNG description; comparison
7. Electric description; comparison
8. Hydrogen description; comparison
9. Hybrids description; comparison
10. Future fuels
11. What fuel is right for me?

Course Objectives

Objectives	
Objective 1	Chart the characteristics of 5 different types of alternative fuels.
Objective 2	Identify system components of a hybrid vehicle.
Objective 3	Summarize interviews of alternative fuel fleet managers.
Objective 4	Evaluate the pros and cons of owning the various types of alternative fuel vehicles.
Objective 5	Describe how the energy used in alternative fueled vehicles is produced.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Describe advantages and disadvantages of 5 different types of alternative fuels.
Outcome 2	Explain the basic operation of a hybrid vehicle.
Outcome 3	Identify which alternative fuels are most commonly used in fleets and among private consumers.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Activity	Textbook reading and homework, projects, and lecture/posting interaction.
Self-exploration	Research project and designated website exploration.
Participation	Lecture and posting discussions, homework completion, and projects.
Discussion	Either through postings or lecture discussions.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
College level or pre-collegiate essays	Research paper on the future of alternative fuels.	In and Out of Class
Student participation/contribution	Lecture/post discussion on chapter materials.	In Class Only
Mid-term and final evaluations	Exams based on text.	In and Out of Class
Tests/Quizzes/Examinations	Chapter quizzes.	In and Out of Class
Reading reports	Textbook assigned readings and internet sites.	In and Out of Class
Written homework	Homework on each assigned chapter from the text.	In and Out of Class

Assignments
Other In-class Assignments

Online discussions
 Reading assignments
 Video presentation review

Other Out-of-class Assignments

- Analyze selected chapter in the required text (2hr per week)
- Homework from required text (2hr per week)
- Selected Internet readings (1hr per week)
- Postings on discussion board (One original post and reply to two others, 1hr per week)
- Internet research (1hr per week)

Grade Methods

Letter Grade Only

Distance Education Checklist

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?

Outside the LMS correspondence will only be through College email and Zoom.

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

Interaction between instructor and learner will help to enhance learning and understanding of subject material.

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:

Chat room/instant messaging
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

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.

Comparable Transfer Course Information

University System

CSU

Campus

UC Riverside

MIS Course Data

CIP Code

47.0614 - Alternative Fuel Vehicle Technology/Technician.

TOP Code

094840 - Alternative Fuels and Advanced Transportation 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

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

5/02/2022

Course Control Number

CCC000523759

Programs referencing this course

Automotive Air Conditioning Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=104>)
Automotive Braking Systems Certificate of Achievement (<http://catalog.collegeofthedesert.eduundefined/?key=109>)
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>)
Power Generation and Distribution (<http://catalog.collegeofthedesert.eduundefined/?key=139>)
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>)