

Course Outline of Record

1. Course Code: AUTO-045A
2.
  - a. Long Course Title: Intro to Alternative Fuel Vehicles
  - b. Short Course Title: INTRO ALT FUEL VEHI
3.
  - a. Catalog Course 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.
  - b. Class Schedule Course 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.
  - c. Semester Cycle (if applicable): Fall
  - d. Name of Approved Program(s):
    - ADVANCED TRANSPORTATION TECHNOLOGIES AS Degree for Employment Preparation
    - AUTOMOTIVE ALTERNATIVE FUELS Certificate of Achievement
4. Total Units: 2.00      Total Semester Hrs: 36.00  
 Lecture Units: 2      Semester Lecture Hrs: 36.00  
 Lab Units: 0      Semester Lab Hrs: 0  
 Class Size Maximum: 30      Allow Audit: No  
 Repeatability No Repeats Allowed  
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:  
*Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm I-A)*  
*N/A*
6. Textbooks, Required Reading or Software: (List in APA or MLA format.)
  - a. Nation Research Council, (2013). Transitions to alternative vehicles and fuels Washington, D.C National Academies Press. ISBN: 9780309268523  
 College Level: Yes  
 Flesch-Kincaid reading level: 13.3
7. Entrance Skills: *Before entering the course students must be able:*
8. Course Content and Scope:

Lecture:

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?

# AUTO 045A-Intro to Alternative Fuel Vehicles

Lab: (if the "Lab Hours" is greater than zero this is required)

## 9. Course Student Learning Outcomes:

1. Describe advantages and disadvantages of 5 different types of alternative fuels.
2. Explain the basic operation of a hybrid vehicle.
3. Identify which alternative fuels are most commonly used in fleets and among private consumers.

## 10. Course Objectives: *Upon completion of this course, students will be able to:*

- a. Chart the characteristics of 5 different types of alternative fuels.
- b. Identify system components of a hybrid vehicle.
- c. Summarize interviews of alternative fuel fleet managers.

## 11. Methods of Instruction: (*Integration: Elements should validate parallel course outline elements*)

- a. Activity
- b. Discussion
- c. Distance Education
- d. Participation
- e. Self-exploration

## 12. Assignments: (*List samples of specific activities/assignments students are expected to complete both in and outside of class.*)

In Class Hours: 36.00

Outside Class Hours: 72.00

### a. Out-of-class Assignments

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| <ol style="list-style-type: none"><li>a. Selected chapter in the required text</li><li>b. Homework from required text</li><li>c. Selected Internet readings</li><li>d. Postings on discussion board</li><li>e. Internet research</li></ol> |
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### b. In-class Assignments

Online discussions Reading assignments Video presentation review
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## 13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- College level or pre-collegiate essays
- Written homework
- Term or research papers
- Reading reports
- True/false/multiple choice examinations
- Mid-term and final evaluations
- Student participation/contribution

## 14. Methods of Evaluating: Additional Assessment Information:

## 15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

CSU/UC Transfer Course

### B. Transfers to CSU

CSU GE Area E: Lifelong Understanding and Self-Development

### E - Lifelong Understanding and Self-Development

# AUTO 045A-Intro to Alternative Fuel Vehicles

## 16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
CSU	UC Riverside			

## 17. Special Materials and/or Equipment Required of Students:

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18. Materials Fees:  Required Material?

Material or Item	Cost Per Unit	Total Cost
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## 19. Provide Reasons for the Substantial Modifications or New Course:

2 year periodic review.

20. a. Cross-Listed Course (*Enter Course Code*): *N/A*  
 b. Replacement Course (*Enter original Course Code*): *N/A*

21. Grading Method (*choose one*): Letter Grade Only

## 22. MIS Course Data Elements

- a. Course Control Number [CB00]: CCC000523759  
 b. T.O.P. Code [CB03]: 94840.00 - Alternative Fuels and Adv  
 c. Credit Status [CB04]: D - Credit - Degree Applicable  
 d. Course Transfer Status [CB05]: B = Transfer CSU  
 e. Basic Skills Status [CB08]: 2N = Not basic skills course  
 f. Vocational Status [CB09]: Clearly Occupational  
 g. Course Classification [CB11]: Y - Credit Course  
 h. Special Class Status [CB13]: N - Not Special  
 i. Course CAN Code [CB14]: *N/A*  
 j. Course Prior to College Level [CB21]: Y = Not Applicable  
 k. Course Noncredit Category [CB22]: Y - Not Applicable  
 l. Funding Agency Category [CB23]: Y = Not Applicable  
 m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (*if program-applicable*): ADVANCED TRANSPORTATION TECHNOLOGIES,AUTOMOTIVE ALTERNATIVE FUELS

*Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)*

## 23. Enrollment - Estimate Enrollment

First Year: 30  
 Third Year: 30

## 24. Resources - Faculty - Discipline and Other Qualifications:

- a. Sufficient Faculty Resources: Yes  
 b. If No, list number of FTE needed to offer this course: *N/A*

## 25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

## 26. Additional Construction or Modification of Existing Classroom Space Needed. (*Explain:*)

N/A

## 27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Douglas Hugh Redman Origination Date 03/09/16

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