

Washtenaw Community College Comprehensive Report

ATT 180 Alternative Vehicle Fundamentals & Safety

Effective Term: Fall 2024

Course Cover

College: Advanced Technologies and Public Service Careers

Division: Advanced Technologies and Public Service Careers

Department: Transportation Technologies

Discipline: Automotive & Transportation Tech (new)

Course Number: 180

Org Number: 14100

Full Course Title: Alternative Vehicle Fundamentals & Safety

Transcript Title: Alt. Vehicle Fund. & Safety

Is Consultation with other department(s) required: No

Publish in the Following:

Reason for Submission: New Course

Change Information:

Rationale: New course submission for the ATT department. This course is the first EV course in the series for the proposed mini certificate, certificate or the degree.

Proposed Start Semester: Fall 2024

Course Description: In this course, students will learn about various alternative energy vehicles used in the transportation industry. Topics of study will include the history and types of alternative energy used in the transportation industry, electric vehicle (EV) and component identifications, and the safety standards and practices needed when working around vehicles and components. Students will also explore current trends and myths surrounding this rapidly evolving sector of vehicles.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 30 **Student:** 30

The following Lab fields are not divisible by 15: Student Min, Instructor Min

Lab: Instructor: 22.5 **Student:** 22.5

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 52.5 **Student:** 52.5

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

Request Course Transfer**Proposed For:****Student Learning Outcomes**

1. Identify safety standards and protocols when operating alternative energy vehicles.

Assessment 1

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2027

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

2. Recognize and differentiate alternative energy vehicle components and systems.

Assessment 1

Assessment Tool: Outcome-related exam questions

Assessment Date: Fall 2027

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

3. Perform safety and service inspections on electric vehicles.

Assessment 1

Assessment Tool: Outcome-related student achievement checklist items

Assessment Date: Fall 2027

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Rubric

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Discuss myths associated with electric vehicles (EVs).
2. Identify opportunities for continuing education related to alternative energy in the transportation industry.
3. Identify the basic safety protocols for electric vehicles.
4. Identify the basic fire suppression safety protocols for alternative energy vehicles.
5. Explore hydrogen fuel cells.
6. Explore new EV battery chemistries.
7. Discuss the history and evolution of EV production.
8. Identify prototyping process for EVs.
9. Discuss the importance of 3D printing for EV prototyping and production.
10. Explore opportunities to tour electric vehicle production facilities, R & D areas, and service departments.

11. Identify basic EV infrastructure.
12. Discuss EV charging system networks.
13. Discuss the development of bi-directional home charging systems.
14. Discuss safety statistics for EVs compared to other road vehicles.
15. Identify the tooling needed to service EVs.
16. Explore mobile applications used with EVs.
17. Identify hybrid vehicle driveline operating systems.
18. Discuss cost differentials for alternative fuel vehicles compared with traditional vehicles.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Shawn Deron</i>	<i>Faculty Preparer</i>	<i>Jan 30, 2024</i>
Department Chair/Area Director: <i>Rocky Roberts</i>	<i>Recommend Approval</i>	<i>Jan 31, 2024</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Feb 01, 2024</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Feb 14, 2024</i>
Assessment Committee Chair: <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Feb 14, 2024</i>
Vice President for Instruction: <i>Brandon Tucker</i>	<i>Approve</i>	<i>Feb 19, 2024</i>