

Washtenaw Community College Comprehensive Report

ATT 280 Introduction to Electric Vehicles (EV)

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: 280

Org Number: 14100

Full Course Title: Introduction to Electric Vehicles (EV)

Transcript Title: Intro to Electric Vehicles

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 second 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 how to service and maintain electric vehicles (EVs) according to the manufacturers' recommendations. Topics of study will include EV component locations, system identifications, and the safety standards and practices needed when servicing vehicles and components. Students will also explore the specific specialty tooling, data collection applications, and diagnostic tooling needed to perform services in a shop environment.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 45 **Student:** 45

Lab: Instructor: 60 **Student:** 60

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

Total Contact Hours: Instructor: 105 **Student:** 105

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

Prerequisite

ASV 131 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify safety standards and protocols when servicing electric 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. Perform service according to the manufacturers' recommended maintenance intervals.

Assessment 1

Assessment Tool: Outcome-related student achievement checklist

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

3. Diagnose and service electric vehicle subsystems.

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

Assessment 2

Assessment Tool: Outcome-related student achievement checklist

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. Identify safety standards when servicing electric vehicles (EVs).

2. Identify safety standards when inspecting EVs.
3. Discuss service procedures for EVs.
4. Discuss battery chemistry in current EVs.
5. Identify the differences between battery cells, modules, bricks, and packs.
6. Identify battery cell configurations such as round, prismatic and pouches.
7. Identify battery pack configurations.
8. Identify tooling for servicing EVs.
9. Discuss maintenance interval specifications for EVs.
10. Discuss system and parts identification processes for EVs.
11. Diagnose charging systems (Electric Vehicle Service Equipment, or EVSE) communications systems.
12. Identify basic EV heating and cooling systems.
13. Identify EV diagnostic trouble codes.
14. Discuss EV system issue symptoms.
15. Use smart device applications for EV data collection.
16. Identify common locations of EV components on vehicles.
17. Define isolation test procedures for EVs.
18. Remove and reinstall EV battery packs.

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>