Washtenaw Community College Comprehensive Report

ATT 286 Electric Vehicle (EV) Dynamometer Testing
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: 286
Org Number: 14100
Full Course Title: Electric Vehicle (EV) Dynamometer Testing
Transcript Title: EV Dynamometer Testing
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 fifth EV course in the series for the proposed mini certificate, certificate or the degree.
Proposed Start Semester: Fall 2025
Course Description: In this course, students will learn how to use automotive and motorcycle chassis dynamometers to collect vehicle data from electric vehicles (EVs). Topics of study will include, but will not be limited to, diagnosing EV drivability issues, developing custom tests to capture miles per gallon of gasoline-equivalent (MPGe) data, and identifying safety standards and practices for chassis dynamometers with EVs. Students will also use dynamometer tests to assess EV battery consumption and degradation values associated with varied weather, temperature, and driving style.

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

Requisites

Prerequisite
ATT 282 minimum grade "C"

General Education

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Identify safety standards and protocols when testing EVs on chassis dynamometers.
   Assessment 1
   Assessment Tool: Outcome-related exam questions
   Assessment Date: Fall 2028
   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 students will score 70% or higher.
   Who will score and analyze the data: Departmental faculty

2. Diagnose EV drivability issues using data collected on chassis dynamometers.
   Assessment 1
   Assessment Tool: Outcome-related exam questions
   Assessment Date: Fall 2028
   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 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 2028
   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. Create custom tests to collect MPGe data and interpret results using chassis dynamometers.
   Assessment 1
   Assessment Tool: Outcome-related student achievement checklist
   Assessment Date: Fall 2028
   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 and definitions related to dynamometer test electric vehicles (EVs).
2. Discuss differences in dyno testing EVs.

3. Collect EV battery data utilizing both car and motorcycle chassis dynamometers.
4. Develop test procedures to collect EV data.
5. Discuss battery consumption data.
6. Collect battery degradation data.
7. Identify regenerative charging data.
8. Diagnose EV driveline problems.
9. Diagnose EV battery connection problems.
10. Diagnose EV battery connection problems.
11. Diagnose EV drivability problems.
12. Discuss MPGe testing values.

New Resources for Course

Course Textbooks/Resources
Textbooks
Manuals
Periodicals
Software

Equipment/Facilities
Level III classroom

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