Washtenaw Community College Comprehensive Report

ATT 279 Automotive Dynamometer and Testing
Effective Term: Fall 2025

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: 279
Org Number: 14100
Full Course Title: Automotive Dynamometer and Testing
Transcript Title: Auto Dynamometer & Testing
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Web Page
Reason for Submission: Course Change
Change Information:
Consultation with all departments affected by this course is required.
Rationale: Update the course for the new discipline.
Proposed Start Semester: Fall 2024
Course Description: In this course, students will learn about data acquisition methods used in modern automotive powertrains. Students will learn the principles of strain gauge pressure sensors and Wheatstone bridge torque transducers. Students also gain practical experience in the laboratory, calibrating and validating the signals produced from a variety of automotive testing equipment. The students will develop and execute a test validation protocol on engine dynamometer stands. This course was previously ASV 279.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 60 **Student:** 60
Lab: Instructor: 45 **Student:** 45
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

Requisites

Prerequisite
ATT 131 minimum grade C
and

Prerequisite
ATT 132 minimum grade C

General Education

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Analyze sensor data validity after executing an engine test cycle.
   Assessment 1
   Assessment Tool: Outcome-related student project
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

2. Produce a powertrain wiring harness from schematics and sensor information.
   Assessment 1
   Assessment Tool: Outcome-related student project
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

3. Develop a test sequence to test an engine on a powertrain dynamometer.
   Assessment 1
   Assessment Tool: Outcome-related student project
   Assessment Date: Fall 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

Course Objectives
1. Demonstrate a procedure for determining sensor data validity.
2. Identify the operation of engine sensors used for testing.
3. Discuss the storage and retrieval of test data.
4. Identify the safety procedures of an engine dynamometer.
5. Create an engine management system wiring harness.
6. Identify the operation of external sensors used for data collection.
7. Develop a procedure for determining sensor data validity.
8. Identify connection points on a wiring diagram.
9. Recognize components on a component locator.

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*	*Mar 27, 2024*
Department Chair/Area Director:		
Rocky Roberts	*Recommend Approval*	*Mar 27, 2024*
Dean:		
Eva Samulski	*Recommend Approval*	*Apr 03, 2024*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Mar 20, 2025*
Assessment Committee Chair:		
Jessica Hale	*Recommend Approval*	*Mar 20, 2025*
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Mar 21, 2025*

Washtenaw Community College Comprehensive Report

ASV 279 Automotive Dynamometer and Test
Effective Term: Fall 2022

Course Cover

College: Advanced Technologies and Public Service Careers
Division: Advanced Technologies and Public Service Careers
Department: Transportation Technologies
Discipline: Auto Services (new)
Course Number: 279
Org Number: 14100
Full Course Title: Automotive Dynamometer and Test
Transcript Title: Auto Dyno and Test
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
Consultation with all departments affected by this course is required.
Outcomes/Assessment
Objectives/Evaluation
Rationale: Three-year master syllabus update based on assessment results.
Proposed Start Semester: Winter 2022
Course Description: In this course, students will learn about data acquisition methods used in modern automotive powertrain development. Students will learn the principles of strain gauge pressure sensors and Wheatstone bridge torque transducers. Students also gain practical experience in the laboratory, calibrating and validating the signals produced from a variety of automotive testing equipment. The students will develop and execute a test validation protocol on engine dynamometer stands.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 60 **Student:** 60
Lab: Instructor: 45 **Student:** 45
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 105 **Student:** 105
Repeatable for Credit: NO
Grading Methods: Letter Grades
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
ASV 131 minimum grade "C"

Prerequisite
ASV 132 minimum grade "C"

General Education

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Analyze sensor data validity after executing an engine test cycle.
   Assessment 1
   Assessment Tool: Outcome-related student project
   Assessment Date: Winter 2023
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

2. Produce a powertrain wiring harness from schematics and sensor information.
   Assessment 1
   Assessment Tool: Outcome-related student project
   Assessment Date: Winter 2023
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

3. Develop a test sequence to test an engine on a powertrain dynamometer.
   Assessment 1
   Assessment Tool: Outcome-related student project
   Assessment Date: Winter 2023
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

Course Objectives
1. Demonstrate a procedure for determining sensor data validity.
2. Identify the operation of engine sensors used for testing.
3. Discuss the storage and retrieval of test data.
4. Identify the safety procedures of an engine dynamometer.
5. Create an engine management system wiring harness.
6. Identify the operation of external sensors used for data collection.
7. Develop a procedure for determining sensor data validity.
8. Identify connection points on a wiring diagram.
9. Recognize components on a component locator.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Allen Day	*Faculty Preparer*	*Aug 17, 2021*
Department Chair/Area Director:		
Michael Duff	*Recommend Approval*	*Aug 18, 2021*
Dean:		
Jimmie Baber	*Recommend Approval*	*Aug 19, 2021*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Mar 28, 2022*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Apr 04, 2022*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Apr 05, 2022*

Washtenaw Community College Comprehensive Report

ASV 279 Automotive Dynamometer and Test
Conditional Approval
Effective Term: Fall 2015

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Automotive Services
Discipline: Auto Services
Course Number: 279
Org Number: 14100
Full Course Title: Automotive Dynamometer and Test
Transcript Title: Auto Dyno and Test
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Web Page
Reason for Submission: New Course
Change Information:
Rationale: This course is one of three new courses that support the Powertrain Development Technician and Automotive Test Technician programs.
Proposed Start Semester: Fall 2015
Course Description: In this course, students will learn about data acquisition methods used in modern automotive powertrain development. Students will learn the principles of strain gauge pressure sensors and Wheatstone bridge torque transducers. Students also gain practical experience in the laboratory, calibrating and validating the signals produced from a variety of automotive testing equipment. The students will develop and execute a test validation protocol on engine dynamometer stands.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 60 **Student:** 60
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Total Contact Hours: Instructor: 105 **Student:** 105
Repeatable for Credit: NO
Grading Methods: Letter Grades
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
ASV 131 minimum grade "C"
Prerequisite
ASV 132 minimum grade "C"

General Education

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Execute an engine test cycle while collecting data to determine sensor data validity.
   Assessment 1
   Assessment Tool: Project
   Assessment Date: Fall 2016
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of students will score 75% or better.
   Who will score and analyze the data: ASV faculty

Course Objectives

1. Demonstrate a procedure for determining sensor data validity.
   Matched Outcomes
   1. Execute an engine test cycle while collecting data to determine sensor data validity.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Allen Day	*Faculty Preparer*	*Apr 06, 2015*
Department Chair/Area Director:		
Allen Day	*Recommend Approval*	*Apr 06, 2015*
Dean:		
Brandon Tucker	*Recommend Approval*	*Apr 14, 2015*
Vice President for Instruction:		
Bill Abernethy	*Conditional Approval*	*Apr 17, 2015*