Washtenaw Community College Comprehensive Report

ATT 131 Automotive Electrical
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: 131
Org Number: 14100
Full Course Title: Automotive Electrical
Transcript Title: Automotive Electrical
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , 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 basic electrical theory, electrical safety of low and high voltage systems, use and interpretation of automotive wiring diagrams, and use of electrical testing equipment. Students will learn the skills needed to diagnose and replace a number of commonly serviced electrical components. The focus of this course allows students to gain practical experience in the laboratory. This course was previously ASV 131.

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

Reduced Reading/Writing Scores

College-Level Math

No Level Required

Requisites

Prerequisite
College Writing level of 3 College Reading level of 5

General Education

Degree Attributes

Below College Level Pre-Reqs

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Read and interpret vehicle wiring diagrams.
   Assessment 1
   Assessment Tool: Outcome-related exam questions
   Assessment Date: Winter 2026
   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 basic electrical components.
   Assessment 1
   Assessment Tool: Outcome-related exam questions
   Assessment Date: Winter 2026
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   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

3. Recognize and apply basic electrical theory.
   Assessment 1
   Assessment Tool: Outcome-related exam questions
   Assessment Date: Winter 2026
   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

Course Objectives

1. Recognize and apply Ohm's law.
2. Recognize and apply electrical safety practices.
3. Operate and interpret a digital volt-ohm meter (DVOM).
4. Recognize wiring diagram symbols and circuits.
5. Perform basic vehicle electrical and wiring repairs.
6. Recognize, diagnose and repair alternators and belts on the charging system.
7. Recognize and repair or replace batteries and energy storage systems.
8. Perform circuit diagnosis and repair.
9. Identify and repair lighting system defects.
10. Diagnose and replace common electrical components.
11. Identify high voltage systems and components.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Computer workstations/lab

Reviewer	Action	Date
Faculty Preparer:		
Justin Morningstar	*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 131 Automotive Electrical
Effective Term: Winter 2020

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Transportation Technologies
Discipline: Auto Services (new)
Course Number: 131
Org Number: 14100
Full Course Title: Automotive Electrical
Transcript Title: Automotive Electrical
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
Consultation with all departments affected by this course is required.
Course description
Pre-requisite, co-requisite, or enrollment restrictions
Outcomes/Assessment
Other:
Rationale: Changes are based on assessment results.
Proposed Start Semester: Fall 2019
Course Description: In this course, students will learn basic electrical theory, use and interpretation of automotive wiring diagrams, and use of electrical testing equipment. Students will learn the skills needed to diagnose and replace a number of commonly serviced electrical components. The focus of this course allows students to gain practical experience in the laboratory.

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

Reduced Reading/Writing Scores

College-Level Math

No Level Required

Requisites

Prerequisite
College Writing level of 3 College Reading level of 5

General Education

Degree Attributes
Statewide articulation approved

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Read and interpret vehicle wiring diagrams.
   Assessment 1
   Assessment Tool: Common departmental exam
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All
   How the assessment will be scored: Common departmental exam will be scored using an answer sheet.
   Standard of success to be used for this assessment: 70% of the students will score an average of 70% or higher.
   Who will score and analyze the data: Departmental faculty

2. Diagnose basic electrical components.
   Assessment 1
   Assessment Tool: Common departmental exam
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All
   How the assessment will be scored: Common departmental exam will be scored using an answer sheet.
   Standard of success to be used for this assessment: 70% of the students will score an average of 70% or higher.
   Who will score and analyze the data: Departmental faculty

3. Recognize and apply basic electrical theory.
   Assessment 1
   Assessment Tool: Common departmental exam
   Assessment Date: Fall 2022
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All
   How the assessment will be scored: Common departmental exam will be scored using an answer sheet.
   Standard of success to be used for this assessment: 70% of the students will score an average of 70% or higher.
   Who will score and analyze the data: Departmental faculty

Course Objectives

1. Recognize and apply OHM's law.
2. Recognize and apply electrical safety practices.
3. Operate and interpret a DVOM.

4. Recognize wiring diagram symbols and circuits.
5. Perform basic vehicle electrical and wiring repairs.
6. Recognize, diagnose and repair alternators and belts on the charging system.
7. Recognize and repair or replace batteries and energy storage systems.
8. Perform circuit diagnosis and repair.
9. Identify and repair lighting system defects.
10. Diagnose and replace common electrical components.

New Resources for Course

The subject of automotive electrical and electronic systems has constantly evolving technology. Every year the tools used to diagnose and repair automotive electrical components are updated by the manufacturers to service new technology for the next model year of car they are producing. To stay current in the automotive education field, prepare our students to be competitive in the workforce, and prepare students for the constant changes in technology they will encounter in their career, we will need to update all our scan tools and testing equipment yearly. Changes in the industry are requiring the use of manufacturer-specific diagnostic equipment (scan tools). This equipment is required to diagnose and repair electrical components on the cars that each manufacturer produces. We will need to acquire software and hardware from the major automotive brands to continue teaching current diagnosis of their automotive electrical systems and have our students be successful and competitive when they enter the workforce after graduation. Based on the current assessment of this course, the faculty feels the assessment data shows we are lacking in this area, and we will need these new resources (manufacturer-specific scan tool hardware and software) to ensure student success in this area in the future.

Course Textbooks/Resources

Textbooks

Kirk VanGelder. *Fundamentals of Automotive Technology 2nd Ed Textbook*, 2nd ed. Jones and Bartlett Learning, 2018, ISBN: 9781284109955.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Computer workstations/lab

Reviewer	Action	Date
Faculty Preparer:		
Justin Morningstar	*Faculty Preparer*	*Oct 24, 2019*
Department Chair/Area Director:		
Justin Morningstar	*Recommend Approval*	*Oct 24, 2019*
Dean:		
Brandon Tucker	*Recommend Approval*	*Oct 24, 2019*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Oct 24, 2019*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Oct 24, 2019*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Oct 24, 2019*