Washtenaw Community College Comprehensive Report

ASV 256 Electrical and Electronic Systems
Effective Term: Spring/Summer 2018

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Automotive Services
Discipline: Auto Services
Course Number: 256
Org Number: 14100
Full Course Title: Electrical and Electronic Systems
Transcript Title: Electrical & Electronic Systms
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.
Outcomes/Assessment
Objectives/Evaluation
Other:
Rationale: Updating as a result of assessment report
Proposed Start Semester: Spring/Summer 2018
Course Description: In this course, students learn the theory and operation of automotive electrical systems. It includes the diagnosis and repair of automotive electrical lighting, instrumentation, convenience and accessory systems. There is a focus on advanced tools and techniques used to diagnose electrical and electronic systems found in today's modern automobiles. This course contains material previously taught in ASV 246.

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:

Jackson Community College

Student Learning Outcomes

1. Read and interpret wiring diagrams and vehicle service manuals.

   Assessment 1

   Assessment Tool: Departmental/NATEF checklist
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: The NATEF requirements will be included in a departmetally-developed checklist that will be used to assess student performance.
   Standard of success to be used for this assessment: 70% of students will score an average of 3 out of 5 or higher on all outcome-related items on the checklist
   Who will score and analyze the data: Departmental faculty

2. Diagnose and identify appropriate repair for electrical circuits.

   Assessment 1

   Assessment Tool: Common departmental exam
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   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 students will score an average of 70% or higher
   Who will score and analyze the data: Departmental faculty will blind-score data when possible

3. Diagnose and evaluate electrical components, motors, actuators and audio and instrumentation circuits.

   Assessment 1

   Assessment Tool: Common departmental exam
   Assessment Date: Winter 2020
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   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 students will score an average of 70% or higher
   Who will score and analyze the data: Departmental faculty will blind-score data when possible

4. Demonstrate the proper use of tools and processes of electrical system diagnosis.

   Assessment 1

Assessment Tool: Departmental/NATEF checklist.
Assessment Date: Winter 2020
Assessment Cycle: Every Three Years
Course section(s)/other population: All sections
Number students to be assessed: All students
How the assessment will be scored: The NATEF requirements will be included in a departmetally-developed checklist that will be used to assess student performance
Standard of success to be used for this assessment: 70% of students will score an average of 3 out of 5 on all outcome-related items on the NATEF skills checklist, which means that they meet expectations
Who will score and analyze the data: Departmental faculty

Course Objectives

1. Recognize and apply shop safety practices.
2. Recognize and apply proper procedure for diagnosing electrical systems.
3. Perform proper inspection, diagnosis and recognize needed repairs on wiring harnesses.
4. Perform proper inspection, diagnosis and on electrical motors and components.
5. Perform repair or replacement as needed on wiring harnesses.
6. Perform diagnosis using the various types of testing equipment and procedures for automotive electrical systems and components.
7. Operate and interpret a DVOM.
8. Apply electrical safety practices.
9. Perform repair or replacement as needed for electrical sensors and components.
10. Recognize and apply proper procedure for repairing electrical systems.
11. Perform repairs or replacement as needed for electrical motors and components.
12. Interpret wiring diagrams.

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, faculty feels the assessment data shows that 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
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Computer workstations/lab

Reviewer	Action	Date
Faculty Preparer:		
Justin Morningstar	*Faculty Preparer*	*May 19, 2017*
Department Chair/Area Director:		
Allen Day	*Recommend Approval*	*Jun 06, 2017*
Dean:		
Brandon Tucker	*Recommend Approval*	*Jun 21, 2017*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Dec 11, 2017*
Assessment Committee Chair:		
Michelle Garey	*Recommend Approval*	*Dec 20, 2017*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Dec 20, 2017*