

# Washtenaw Community College Comprehensive Report

## ASV 267 Alternative Powertrain Technology Effective Term: Fall 2015

### Course Cover

**Division:** Advanced Technologies and Public Service Careers

**Department:** Automotive Services

**Discipline:** Auto Services

**Course Number:** 267

**Org Number:** 14100

**Full Course Title:** Alternative Powertrain Technology

**Transcript Title:** Alternative Powertrains

**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:**

**Course discipline code & number**

**Course title**

**Course description**

**Credit hours**

**Distribution of contact hours**

**Pre-requisite, co-requisite, or enrollment restrictions**

**Outcomes/Assessment**

**Rationale:** This course is being updated to combine multiple powertrain system technologies to better align with NATEF and ASE standards and better match the resources at WCC. Also, this will align these courses better to market demand based on feedback from employers.

**Proposed Start Semester:** Fall 2015

**Course Description:** In this course, students will explore the theory and application of modern light-duty diesel engines in automobile and light truck applications. Students will learn about modern electric vehicle powertrains as well as diesel and alternative fuel systems. Students will develop the skills for diagnosis and repair of fuel and electrical systems. Turbochargers, blowers and catalytic converters, as well as particulate trap exhaust systems, will also be covered in this course. This course contains material previously taught in ASV 261 and ASV 262.

### Course Credit Hours

**Variable hours:** No

**Credits:** 3

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

**Lab: Instructor:** 30 **Student:** 30

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

**Total Contact Hours: Instructor:** 75 **Student:** 75

**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** minimum grade "C"  
ASV130  
**Prerequisite** minimum grade "C"  
ASV132  
**Prerequisite** minimum grade "C"  
ASV133

## General Education

### Request Course Transfer

Proposed For:

## Student Learning Outcomes

1. Read and interpret vehicle service manuals and after market manufacturer's instructions.

### **Assessment 1**

**Assessment Tool:** Common departmental exam and NATEF checklist

**Assessment Date:** Fall 2015

**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. NATEF checklist will be scored using the departmentally-developed rubric.

**Standard of success to be used for this assessment:** 70% of the students will score an overall average of 70% or higher.

**Who will score and analyze the data:** Departmental faculty

2. Recognize and apply knowledge of diesel engine technology to diagnose and repair fuel and electrical systems.

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3. Diagnose and evaluate turbochargers and blowers.

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## **Course Objectives**

1. Read and interpret vehicle service manuals.

### **Matched Outcomes**

1. Read and interpret vehicle service manuals and after market manufacturer's instructions.

2. Recognize and perform standard maintenance as required by diesel engines.

### **Matched Outcomes**

2. Recognize and apply knowledge of diesel engine technology to diagnose and repair fuel and electrical systems.

3. Diagnose fuel system problems and perform appropriate repairs.

### **Matched Outcomes**

2. Recognize and apply knowledge of diesel engine technology to diagnose and repair fuel and electrical systems.

4. Diagnose electrical system programs and perform appropriate repairs.

### **Matched Outcomes**

2. Recognize and apply knowledge of diesel engine technology to diagnose and repair fuel and electrical systems.

5. Read and interpret after market manufacturer's instructions.

### **Matched Outcomes**

1. Read and interpret vehicle service manuals and after market manufacturer's instructions.

6. Recognize and perform standard maintenance particulate trap exhaust systems.

### **Matched Outcomes**

3. Diagnose and evaluate turbochargers and blowers.

7. Diagnose and evaluate turbochargers and blowers.

### **Matched Outcomes**

3. Diagnose and evaluate turbochargers and blowers.

## **New Resources for Course**

### **Course Textbooks/Resources**

Textbooks

Bennett, Sean. *Modern Diesel Technology: Light Duty Diesels*, 1st ed. Cengage Learning, 2012, ISBN: 9781435480476.

Manuals

Periodicals

Software

### **Equipment/Facilities**

Level III classroom

Computer workstations/lab

### **Reviewer**

### **Action**

### **Date**

#### **Faculty Preparer:**

*Allen Day*

*Faculty Preparer*

*Feb 03, 2015*

#### **Department Chair/Area Director:**

*Allen Day*

*Recommend Approval*

*Feb 10, 2015*

#### **Dean:**

*Brandon Tucker*

*Recommend Approval*

*Feb 23, 2015*

#### **Vice President for Instruction:**

*Bill Abernethy*

*Approve*

*Mar 16, 2015*