

# Washtenaw Community College Comprehensive Report

## ATT 133 Automotive Fuel Systems 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:** 133

**Org Number:** 14100

**Full Course Title:** Automotive Fuel Systems

**Transcript Title:** Automotive Fuel Systems

**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.**

**Course description**

**Objectives/Evaluation**

**Rationale:** Update the course for the new discipline.

**Proposed Start Semester:** Fall 2025

**Course Description:** In this course, students will be introduced to the theory and operation of fuel delivery as well as emissions systems and their components. Using specialized diagnostic test equipment, students will develop skills to inspect, diagnose, and perform services on fuel delivery and emission systems. Safe component replacement and repair procedures will also be covered. This course was previously ASV 133.

### 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**

ATT 131 minimum grade C

## **General Education**

## **Request Course Transfer**

### **Proposed For:**

## **Student Learning Outcomes**

1. Recognize and demonstrate safe shop practices.

### **Assessment 1**

Assessment Tool: Outcome-related exam questions

Assessment Date: Winter 2025

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 the 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: Winter 2025

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

2. Recognize and service basic fuel system components.

### **Assessment 1**

Assessment Tool: Outcome-related student achievement checklist

Assessment Date: Winter 2025

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

### **Assessment 2**

Assessment Tool: Outcome-related exam questions

Assessment Date: Winter 2025

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 the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

### 3. Recognize, diagnose and repair basic emission control components.

#### **Assessment 1**

Assessment Tool: Outcome-related student achievement checklist

Assessment Date: Winter 2025

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

#### **Assessment 2**

Assessment Tool: Outcome-related exam questions

Assessment Date: Winter 2025

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 the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

### 4. Identify and demonstrate the use of on-board diagnostics system II (OBD II).

#### **Assessment 1**

Assessment Tool: Outcome-related student achievement checklist

Assessment Date: Winter 2025

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

#### **Assessment 2**

Assessment Tool: Outcome-related exam questions

Assessment Date: Winter 2025

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 the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

### **Course Objectives**

1. Identify and perform basic service on power control module (PCM) system.
2. Identify and perform basic service on pressure regulators.
3. Identify and operate various manufacturers' scan tools.
4. Identify and perform basic service on fuel pumps.
5. Identify and perform basic service on fuel filters.
6. Evaluate fuel quality, check for contaminants, and identify necessary action.
7. Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume and perform necessary action.
8. Replace fuel filters.

9. Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.
10. Inspect and test fuel injectors.
11. Verify idle control operation.
12. Diagnose oil leaks, emissions, and drivability concerns caused by the positive crankcase ventilation (PCV) system, and determine necessary action.
13. Diagnose emissions and drivability concerns caused by the exhaust gas recirculation (EGR) system, and determine necessary action.
14. Inspect, test, service and replace components of the EGR system, including EGR tubing, exhaust passages, vacuum/pressure controls, filters and hoses, and perform necessary action.
15. Inspect and test catalytic converter efficiency.
16. Inspect and test components and hoses of the evaporative emissions control system and perform necessary action.
17. Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems, and determine necessary action.

### New Resources for Course

#### Course Textbooks/Resources

##### Textbooks

Gills, Tim. *Automotive Service*, 4 ed. Delmar Publishing, 2011, ISBN: 97811111-2861.

##### Manuals

##### Periodicals

##### Software

#### Equipment/Facilities

Level III classroom

Computer workstations/lab

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
<b>Faculty Preparer:</b> <i>Shawn Deron</i>	<i>Faculty Preparer</i>	<i>Mar 27, 2024</i>
<b>Department Chair/Area Director:</b> <i>Rocky Roberts</i>	<i>Recommend Approval</i>	<i>Mar 27, 2024</i>
<b>Dean:</b> <i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>Apr 03, 2024</i>
<b>Curriculum Committee Chair:</b> <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Mar 20, 2025</i>
<b>Assessment Committee Chair:</b> <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Mar 20, 2025</i>
<b>Vice President for Instruction:</b> <i>Brandon Tucker</i>	<i>Approve</i>	<i>Mar 21, 2025</i>

## Washtenaw Community College Comprehensive Report

### ASV 133 Automotive Fuel Systems Effective Term: Spring/Summer 2020

#### Course Cover

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

**Department:** Transportation Technologies

**Discipline:** Auto Services (new)

**Course Number:** 133

**Org Number:** 14100

**Full Course Title:** Automotive Fuel Systems

**Transcript Title:** Automotive Fuel Systems

**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 title**

**Course description**

**Outcomes/Assessment**

**Rationale:** Update Master Syllabus after assessment.

**Proposed Start Semester:** Winter 2020

**Course Description:** In this course, students will be introduced to the theory and operation of fuel delivery and emissions systems and their components. Using specialized diagnostic test equipment, students will develop skills to inspect, diagnose, and perform services on fuel delivery and emission systems. Safe component replacement and repair procedures will also be covered. The title of this course was previously Automotive Fuel.

#### 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:**

**Student Learning Outcomes**

1. Recognize and demonstrate safe shop practices.

**Assessment 1**

Assessment Tool: Common departmental exam

Assessment Date: Winter 2021

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 key.

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

**Assessment 2**

Assessment Tool: Lab checklist (acceptable or not acceptable)

Assessment Date: Winter 2021

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 lab checklist will be scored using a checklist with each item graded as acceptable or not acceptable.

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 service basic fuel system components.

**Assessment 1**

Assessment Tool: Common departmental exam

Assessment Date: Winter 2021

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 key.

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

**Assessment 2**

Assessment Tool: Lab checklist (acceptable or not acceptable)

Assessment Date: Winter 2021

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 lab checklist will be scored using a checklist with each item graded as acceptable or not acceptable.

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

3. Recognize, diagnose and repair basic emission control components.

**Assessment 1**

Assessment Tool: Departmental exam

Assessment Date: Winter 2021

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: Departmental exam will be scored using an answer key.

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

**Assessment 2**

Assessment Tool: Lab checklist (acceptable or not acceptable)

Assessment Date: Winter 2021

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 lab checklist will be scored using a checklist with each item graded as acceptable or not acceptable.

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

Who will score and analyze the data: Departmental faculty

4. Identify and demonstrate the use of on-board diagnostics system II (OBD II).

**Assessment 1**

Assessment Tool: Departmental exam

Assessment Date: Winter 2021

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: 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 overall average of 70% or higher.

Who will score and analyze the data: Departmental faculty

**Assessment 2**

Assessment Tool: Lab checklist (acceptable or not acceptable)

Assessment Date: Winter 2021

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 lab checklist will be scored using a checklist with each item graded as acceptable or not acceptable.

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

**Course Objectives**

1. Identify and perform basic service on PCM system.
2. Identify and perform basic service on pressure regulators.
3. Properly use scan tools.
4. Identify and perform basic service on fuel pumps.

5. Identify and perform basic service on fuel filters.
6. Check fuel for contaminants and quality, and determine necessary action.
7. Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume and perform necessary action.
8. Replace fuel filters.
9. Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.
10. Inspect and test fuel injectors.
11. Verify idle control operation.
12. Diagnose oil leaks, emissions, and driveability concerns caused by the positive crankcase ventilation (PCV) system, and determine necessary action.
13. Diagnose emissions and driveability concerns caused by the exhaust gas recirculation (EGR) system, and determine necessary action.
14. Inspect, test, service and replace components of the EGR system, including EGR tubing, exhaust passages, vacuum/pressure controls, filters and hoses, and perform necessary action.
15. Inspect and test catalytic converter efficiency.
16. Inspect and test components and hoses of the evaporative emissions control system and perform necessary action.
17. Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems, and determine necessary action.

## New Resources for Course

### Course Textbooks/Resources

Textbooks

Gills, Tim. *Automotive Service*, 4 ed. Delmar Publishing, 2011, ISBN: 97811111-2861.

Manuals

Periodicals

Software

### Equipment/Facilities

Level III classroom

Computer workstations/lab

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



# Washtenaw Community College Comprehensive Report

## ASV 133 Automotive Fuel Effective Term: Fall 2015

### Course Cover

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

**Department:** Automotive Services

**Discipline:** Auto Services

**Course Number:** 133

**Org Number:** 14100

**Full Course Title:** Automotive Fuel

**Transcript Title:** Automotive Fuel

**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.**

**Course discipline code & number**

**Course title**

**Course description**

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

**Outcomes/Assessment**

**Objectives/Evaluation**

**Rationale:** Align with NATEF and ASE standards to better align the articulation with high schools.

**Proposed Start Semester:** Fall 2015

**Course Description:** In this course, students will learn the theory and operation of automotive fuel and emissions systems. Students will have the opportunity to inspect, diagnose, and perform services on fuel system components and emissions. This course was previously ASV 144 and contains material previously taught in ASV 153 and ASV 154.

### 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

#### Requisites

**Prerequisite** minimum grade "C"

ASV130

## General Education

### Request Course Transfer

Proposed For:

### Student Learning Outcomes

1. Recognize and demonstrate safe shop practices.

#### **Assessment 1**

**Assessment Tool:** Departmental exam and NATEF performance tasks

**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 service basic fuel system components.

#### **Assessment 1**

**Assessment Tool:** Departmental exam and NATEF performance tasks

**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

3. Recognize, diagnose and repair basic emission control components.

#### **Assessment 1**

**Assessment Tool:** Departmental exam and NATEF performance tasks

**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

4. Identify and use on-board diagnostics system II.

#### **Assessment 1**

**Assessment Tool:** Departmental exam and NATEF performance tasks

**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

## **Course Objectives**

1. Identify and perform basic service on PCM system.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
2. Identify and perform basic service on pressure regulators.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
3. Properly use scan tools.  
**Matched Outcomes**
4. Identify and perform basic service on fuel pumps.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
5. Identify and perform basic service on fuel filters.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
6. Check fuel for contaminants and quality and determine necessary action.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
7. Inspect and test fuel pumps and pump control systems for pressure, regulation, and volume and perform necessary action.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
8. Replace fuel filters.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
9. Inspect throttle body, air induction system, intake manifold and gaskets for vacuum leaks and/or unmetered air.  
**Matched Outcomes**
  2. Recognize and service basic fuel system components.
10. Inspect and test fuel injectors.  
**Matched Outcomes**
  1. Recognize and demonstrate safe shop practices.
  2. Recognize and service basic fuel system components.
11. Verify idle control operation.  
**Matched Outcomes**
12. Diagnose oil leaks, emissions, and driveability concerns caused by the positive crankcase ventilation (PCV) system and determine necessary action.  
**Matched Outcomes**
13. Diagnose emissions and driveability concerns caused by the exhaust gas recirculation (EGR) system and determine necessary action.  
**Matched Outcomes**
14. Inspect, test, service and replace components of the EGR system, including EGR tubing, exhaust passages, vacuum/pressure controls, filters and hoses and perform necessary action.  
**Matched Outcomes**

15. Inspect and test catalytic converter efficiency.

**Matched Outcomes**

16. Inspect and test components and hoses of the evaporative emissions control system and perform necessary action.

**Matched Outcomes**

17. Interpret diagnostic trouble codes (DTCs) and scan tool data related to the emissions control systems and determine necessary action.

**Matched Outcomes**

**New Resources for Course**

**Course Textbooks/Resources**

Textbooks

Gills, Tim. *Automotive Service*, 4 ed. Delmar Publishing, 2011, ISBN: 97811111-2861.

Manuals

Periodicals

Software

**Equipment/Facilities**

Level III classroom

Computer workstations/lab

**Reviewer**

**Action**

**Date**

**Faculty Preparer:**

*Michael Duff*

*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*