

Washtenaw Community College Comprehensive Report

ASV 254 Suspension and Steering Effective Term: Winter 2024

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: 254

Org Number: 14100

Full Course Title: Suspension and Steering

Transcript Title: Suspension and Steering

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:

Objectives/Evaluation

Rationale: The course objectives need to be updated to include EPS/SAS (electronic power steering/steering angle sensor) calibrations and differentiating between alignment concerns and ADAS concerns.

Proposed Start Semester: Winter 2024

Course Description: In this course, students will learn the theory, operation, and develop skills to diagnosis, maintain and repair automotive suspension and steering systems. Students will learn how to test and evaluate major suspension and steering components that leads to component replacement. Students will also develop an understanding of the symptoms of vehicles needing a 4-wheel vehicle alignment and learn the skills to needed to properly complete alignments using industry standard equipment.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 30 Student: 30

The following Lab fields are not divisible by 15: Student Min, Instructor Min

Lab: Instructor: 22.5 Student: 22.5

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 52.5 Student: 52.5

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**

ASV 130 minimum grade "C"

General Education**Request Course Transfer**

Proposed For:

Student Learning Outcomes

1. Evaluate steering and suspension system components for wear and damage.

Assessment 1

Assessment Tool: Outcome-related Written Exam questions

Assessment Date: Winter 2026

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: 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

Assessment 2

Assessment Tool: Outcome-related Practical Exam questions

Assessment Date: Winter 2026

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: Departmentally-developed rubric

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. Remove and install steering and suspension system components.

Assessment 1

Assessment Tool: Lab assignment sheets

Assessment Date: Winter 2026

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: Skills checklist

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. Perform vehicle pre-alignment inspection.

Assessment 1

Assessment Tool: Outcome-related Practical Exam questions

Assessment Date: Winter 2026

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: Departmentally-developed rubric

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

4. Perform vehicle alignments procedure.

Assessment 1

Assessment Tool: Outcome-related skills checklist

Assessment Date: Winter 2026

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: Departmentally-developed skills checklist

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 shop safety practices.
2. Recognize proper inspection, diagnosing and repair of steering components.
3. Perform proper inspection, diagnosis and replacement of steering components.
4. Perform proper inspection and diagnosis of gear boxes, steering racks and pumps.
5. Replace gear boxes, steering racks and pumps as needed.
6. Perform 4-wheel alignments on vehicles using proper procedures and equipment.
7. Recognize proper diagnosis of vehicle wander, drift, pull steering concerns.
8. Recognize proper inspection of tire wear patterns.
9. Perform proper diagnosis of tire and wheel vibration, shimmy and noise.
10. Measure proper wheel, tire, axle flange and hub run out.
11. Recognize proper inspection, diagnosis and repair of suspension components.
12. Perform proper inspection, diagnosis and replacement of suspension components.
13. Perform electronic power steering/steering angle sensor calibrations after an alignment procedure.
14. Differentiate between wheel alignment concerns and advanced driver assistance systems concerns.

New Resources for Course**Course Textbooks/Resources**

Textbooks

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Data projector/computer

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Michael Duff</i>	<i>Faculty Preparer</i>	<i>Jun 21, 2023</i>
Department Chair/Area Director: <i>Rocky Roberts</i>	<i>Recommend Approval</i>	<i>Jun 22, 2023</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Jul 12, 2023</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Nov 09, 2023</i>
Assessment Committee Chair: <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Nov 09, 2023</i>
Vice President for Instruction: <i>Brandon Tucker</i>	<i>Approve</i>	<i>Nov 09, 2023</i>

Washtenaw Community College Comprehensive Report

ASV 254 Suspension and Steering Effective Term: Spring/Summer 2018

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Automotive Services

Discipline: Auto Services

Course Number: 254

Org Number: 14100

Full Course Title: Suspension and Steering

Transcript Title: Suspension and Steering

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.

Outcomes/Assessment

Objectives/Evaluation

Rationale: Break down objectives with specific descriptions.

Proposed Start Semester: Spring/Summer 2018

Course Description: In this course, students learn the theory and execution of automotive suspension and steering system diagnosis and repair. Students will apply proper techniques in performing 4-wheel alignments as well as major suspension and steering component replacement. This course was previously ASV 244.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 30 **Student:** 30

The following Lab fields are not divisible by 15: Student Min, Instructor Min

Lab: Instructor: 22.5 **Student:** 22.5

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

Total Contact Hours: Instructor: 52.5 **Student:** 52.5

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

ASV 130 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Evaluate steering and suspension system components for wear and damage.

Assessment 1

Assessment Tool: Written Exam

Assessment Date: Winter 2019

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: 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

Assessment 2

Assessment Tool: Practical Exam

Assessment Date: Winter 2019

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: Departmentally-developed rubric

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. Remove and install steering and suspension system components.

Assessment 1

Assessment Tool: Lab assignment sheets

Assessment Date: Winter 2019

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: Skills checklist

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. Perform vehicle pre-alignment inspection.

Assessment 1

Assessment Tool: Practical Exam

Assessment Date: Winter 2019

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: Departmentally-developed rubric

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

4. Perform vehicle alignments procedure.

Assessment 1

Assessment Tool: Practical Exam

Assessment Date: Winter 2019

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: Departmentally-developed rubric

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 shop safety practices.
2. Recognize proper inspection, diagnosing and repair of steering components.
3. Perform proper inspection, diagnosis and replacement of steering components.
4. Perform proper inspection and diagnosis of gear boxes, steering racks and pumps.
5. Replace gear boxes, steering racks and pumps as needed.
6. Perform 4-wheel alignments on vehicles using proper procedures and equipment.
7. Recognize proper diagnosis of vehicle wander, drift, pull steering concerns.
8. Recognize proper inspection of tire wear patterns.
9. Perform proper diagnosis of tire and wheel vibration, shimmy and noise.
10. Measure proper wheel, tire, axle flange and hub run out.
11. Recognize proper inspection, diagnosis and repair of suspension components.
12. Perform proper inspection, diagnosis and replacement of suspension components.

New Resources for Course

Course Textbooks/Resources

Textbooks

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Computer workstations/lab

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Thomas Hemsteger</i>	<i>Faculty Preparer</i>	<i>Jun 27, 2017</i>
Department Chair/Area Director: <i>Justin Morningstar</i>	<i>Recommend Approval</i>	<i>Aug 04, 2017</i>
Dean: <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>Aug 20, 2017</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Nov 16, 2017</i>
Assessment Committee Chair: <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Nov 27, 2017</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Dec 02, 2017</i>