Washtenaw Community College Comprehensive Report

ATT 254 Suspension and Steering 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: 254
Org Number: 14100
Full Course Title: Suspension and Steering Systems
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.
Rationale: Update the course for the new discipline.
Proposed Start Semester: Fall 2025
Course Description: In this course, students will learn the theory and operation of vehicle suspension and steering systems. Students will develop the skills to diagnose, maintain and repair faulty components and systems. Students will also test, evaluate and service major suspension and steering components. Students will build skills such as component replacement, recognize the symptoms of vehicles requiring a 4-wheel alignment and properly perform alignments using industry-standard equipment. This course was previously ASV 254.

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
ATT 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: 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 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, diagnosis and repair procedures related to 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 and pull steering concerns.
8. Recognize proper inspection of tire wear patterns.
9. Perform proper diagnosis of tire and wheel vibration, shimmy and noise using a Road Force wheel balancer.
10. Measure proper wheel, tire, axle flange and hub run out.
11. Recognize proper inspection, diagnosis and repair procedures related to 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

Reviewer	Action	Date
Faculty Preparer:		
Shawn Deron	*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 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

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

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

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