

Washtenaw Community College Comprehensive Report

ATT 255 Brake 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: 255

Org Number: 14100

Full Course Title: Brake Systems

Transcript Title: Brake 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.

Other:

Rationale: Update the course for the new discipline.

Proposed Start Semester: Fall 2024

Course Description: In this course, students will develop skills in diagnosing and repairing brake systems on vehicles, including hydraulic, mechanical, and electrical component systems. Additional topics will include but are not limited to; diagnosis and repair of anti-lock brake components and systems, stability control components and systems, and traction control systems. This course was previously ASV 255.

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. Read and interpret vehicle service manuals and methods of acquiring service information.

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

2. Diagnose and repair basic hydraulic brake systems and components.

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 lab skills 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: Departmentally-developed 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

3. Diagnose, repair and/or adjust mechanical brake systems and components.

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 lab skills 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: Departmentally-developed 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

4. Diagnose and interpret or repair advanced electrical and hydraulic brake systems and components.

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 lab skills 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: Departmentally-developed 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

Course Objectives

1. Recognize and apply shop safety practices.
2. Recognize proper procedure for diagnosing and repairing disc brake system problems.
3. Repair disc brake system problems.
4. Repair drum brake system problems.
5. Perform proper procedures for repairing drum brake system problems.
6. Inspect and diagnose brake system warning devices.
7. Repair brake system warning devices.
8. Inspect, diagnose and recognize needed repairs on anti-lock braking system (ABS) anti-lock brakes.
9. Perform repairs and adjustment to ABS anti-lock brakes.
10. Inspect, diagnose and recognize needed repairs on electronic stability program (ESP).
11. Recognize proper procedures for diagnosing and replacing power brake boosters and master cylinders.
12. Inspect, diagnose and recognize needed service on master cylinders and power brake boosters.
13. Perform repairs and adjustments to the various styles of parking brake mechanisms.
14. Initialize ABS or ESP modules or components.

New Resources for Course

Course Textbooks/Resources

Textbooks

Pickerill. *Automotive brake systems*, 7th ed. Cengage, 2016, ISBN: 9781337564526.

Manuals

Periodicals
Software

Equipment/Facilities

Level III classroom
Computer workstations/lab

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

Washtenaw Community College Comprehensive Report

ASV 255 Brakes Effective Term: Spring/Summer 2020

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Transportation Technologies

Discipline: Auto Services (new)

Course Number: 255

Org Number: 14100

Full Course Title: Brakes

Transcript Title: Brakes

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 description

Outcomes/Assessment

Other:

Rationale: Master syllabus update due to three-year assessment results.

Proposed Start Semester: Winter 2020

Course Description: In this course, students develop skills in diagnosing and repairing brake systems on vehicles, including hydraulic, mechanical, and electrical component systems. Additional topics include diagnosis and repair of anti-lock brake, stability and traction control systems.

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. Read and interpret vehicle service manuals and methods of acquiring service information.

Assessment 1

Assessment Tool: Common departmental exam

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: 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

2. Diagnose and repair basic hydraulic brake systems and components.

Assessment 1

Assessment Tool: Common departmental exam

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: 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 skills sheet

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: Checklist

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. Diagnose, repair and/or adjust mechanical brake systems and components.

Assessment 1

Assessment Tool: Common departmental exam

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: 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 skills sheet

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: Checklist

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. Diagnose and interpret or repair advanced electrical and hydraulic brake systems and components.

Assessment 1

Assessment Tool: Common departmental exam

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: 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 skills sheet

Assessment Date: Winter 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: A random sample of students

How the assessment will be scored: Checklist

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. Recognize and apply shop safety practices.
2. Recognize proper procedure for diagnosing and repairing disc brake system problems.
3. Repair disc brake system problems.
4. Repair drum brake system problems.
5. Perform proper procedures for repairing drum brake system problems.
6. Inspect and diagnose brake system warning devices.
7. Repair brake system warning devices.
8. Inspect, diagnose and recognize needed repairs on ABS anti-lock brakes.
9. Perform repairs and adjustment to ABS anti-lock brakes.
10. Inspect, diagnose and recognize needed repairs on electronic stability program (ESP).
11. Recognize proper procedures for diagnosing and replacing power brake boosters and master cylinders.
12. Inspect, diagnose and recognize needed service on master cylinders and power brake boosters.
13. Perform repairs and adjustments to the various styles of parking brake mechanisms.
14. Initialize ABS or ESP module or component.

New Resources for Course

Course Textbooks/Resources

Textbooks

Pickerill. *Automotive brake systems*, 7th ed. Cengage, 2016, ISBN: 9781337564526.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

Computer workstations/lab

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

Course Discipline Code & No: ASV 255 Title: Brakes Effective Term Fall 2009
 Division Code: VCT Department Code: AUTD Org #: _____
 Don't publish: College Catalog Time Schedule Web Page

Reason for Submission. Check all that apply.
 New course approval Reactivation of inactive course
 Three-year syllabus review/Assessment report Inactivation (Submit this page only.)
 Course change

Change information: Note all changes that are being made. Form applies only to changes noted.

<input type="checkbox"/> Consultation with all departments affected by this course is required.	<input checked="" type="checkbox"/> Total Contact Hours (total contact hours were: <u>60</u>)
<input checked="" type="checkbox"/> Course discipline code & number (was <u>ASV 245</u>)* *Must submit inactivation form for previous course.	<input checked="" type="checkbox"/> Distribution of contact hours (contact hours were: lecture: <u>30</u> lab <u>30</u> clinical _____ other _____)
<input type="checkbox"/> Course title (was _____)	<input checked="" type="checkbox"/> Pre-requisite, co-requisite, or enrollment restrictions
<input checked="" type="checkbox"/> Course description	<input type="checkbox"/> Change in Grading Method
<input checked="" type="checkbox"/> Course objectives (minor changes)	<input checked="" type="checkbox"/> Outcomes/Assessment
<input type="checkbox"/> Credit hours (credits were: _____)	<input type="checkbox"/> Objectives/Evaluation
	<input type="checkbox"/> Other _____

Rationale for course or course change. Attach course assessment report for existing courses that are being changed.
 Course is being re-written as part of the overall program update.

Approvals Department and divisional signatures indicate that all departments affected by the course have been consulted.

Department Review by Chairperson New resources needed All relevant departments consulted

Print: Allen Day Faculty/Preparer Signature: [Signature] Date: 10/29/2009
 Print: Russ Ferguson Department Chair Signature: [Signature] Date: 10/29/2009

Division Review by Dean
 Request for conditional approval
 Recommendation Yes No [Signature] Date: 10/29/09
 Dean's/Administrator's Signature

Curriculum Committee Review
 Recommendation Tabled Yes No [Signature] Date: 3/16/10
 Curriculum Committee Chair's Signature

Vice President for Instruction Approval
[Signature] Date: 3-12-10
 Vice President's Signature

Approval Yes No Conditional

Do not write in shaded area.
 Log File 11/10/09 Ecopy Banner C&A Database C&A Log File Basic skills Contact fee

Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

MASTER SYLLABUS

***Complete ALL sections which apply to the course, even if changes are not being made.**

Course: ASV 255	Course title: Brakes
-----------------	----------------------

Credit hours: <u> 2 </u> If variable credit, give range: _____ to _____ credits	Contact hours per semester: <table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center; border-bottom: 1px solid black;">Student</td> <td style="text-align: center; border-bottom: 1px solid black;">Instructor</td> </tr> <tr> <td>Lecture:</td> <td style="text-align: center;">30</td> <td style="text-align: center;">30</td> </tr> <tr> <td>Lab:</td> <td style="text-align: center;">22.5</td> <td style="text-align: center;">22.5</td> </tr> <tr> <td>Clinical:</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Practicum:</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Other:</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Totals:</td> <td style="text-align: center; border-top: 1px solid black;">52.5</td> <td style="text-align: center; border-top: 1px solid black;">52.5</td> </tr> </table>		Student	Instructor	Lecture:	30	30	Lab:	22.5	22.5	Clinical:	-	-	Practicum:	-	-	Other:	-	-	Totals:	52.5	52.5	Are lectures, labs, or clinicals offered as separate sections? <input type="checkbox"/> Yes - lectures, labs, or clinicals are offered in separate sections <input checked="" type="checkbox"/> No - lectures, labs, or clinicals are offered in the same section	Grading options: <input type="checkbox"/> P/NP (limited to clinical & practica) <input type="checkbox"/> S/U (for courses numbered below 100) <input checked="" type="checkbox"/> Letter grades
	Student	Instructor																						
Lecture:	30	30																						
Lab:	22.5	22.5																						
Clinical:	-	-																						
Practicum:	-	-																						
Other:	-	-																						
Totals:	52.5	52.5																						

Prerequisites. Select one:

- College-level Reading & Writing
 Reduced Reading/Writing Scores (Add information at Level I prerequisite)
 No Basic Skills Prerequisite (College-level Reading and Writing is not required.)

In addition to Basic Skills in Reading/Writing:

Level I (enforced in Banner)

Course	Grade	Test	Min. Score	Concurrent Enrollment <small>Can be taken together)</small>	Corequisites <small>Must be enrolled in this class also during the same semester)</small>
<input type="checkbox"/> _____	_____	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____	<input type="checkbox"/>	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____	<input type="checkbox"/>	_____

Level II (enforced by instructor on first day of class)

Course	Grade	Test	Min. Score
<input type="checkbox"/> _____	_____	_____	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____
<input type="checkbox"/> and <input type="checkbox"/> or _____	_____	_____	_____

Enrollment restrictions (In addition to prerequisites, if applicable.)

- and or Consent required
 and or Admission to program required
 and or Other (please specify): Completion of Automotive Mechanic Certificate or comparable field experience

Please send syllabus for transfer evaluation to:
 Conditionally approved courses are not sent for evaluation.
 Insert course number and title you wish the course to transfer as.

<input type="checkbox"/> E.M.U. as _____	<input type="checkbox"/> _____ as _____
<input type="checkbox"/> U of M as _____	<input type="checkbox"/> _____ as _____
<input type="checkbox"/> _____ as _____	<input type="checkbox"/> _____ as _____

MASTER SYLLABUS

<p>Course: ASV 255</p>	<p>Course title: Brakes</p>	
<p>Course description State the purpose and content of the course. Please limit to 500 characters.</p>	<p>In this course, students develop skills in diagnosing and repairing brake systems on vehicles. Instruction includes hydraulic system service and mechanical brakes system service. In addition, diagnosis and repair of anti-lock brake and stability control systems is included.</p>	
<p>Course outcomes List skills and knowledge students will have after taking the course. Assessment method Indicate how student achievement in each outcome will be assessed to determine student achievement for purposes of course improvement.</p>	<p>Outcomes (applicable in all sections)</p> <p>Read and interpret vehicle service manuals</p> <p>Diagnose and repair disc and drum brake systems and components</p> <p>Remove and replace brake system components as well as anti-lock (ABS) brake components</p> <p>Diagnose and replace power brake booster and master cylinders.</p>	<p>Assessment Methods for determining course effectiveness</p> <p>Common departmental exam; NATEF checklist</p> <p>Common departmental exam; NATEF checklist</p> <p>Common departmental exam; NATEF checklist</p> <p>Common departmental exam; NATEF checklist</p>
<p>Course Objectives Indicate the objectives that support the course outcomes given above.</p> <p>Course Evaluations Indicate how instructors will determine the degree to which each objective is met for each student.</p>	<p>Objectives (applicable in all sections)</p> <p>Outcomes 1 and 2</p> <p>Recognize and apply shop safety practices</p> <p>Recognize proper procedure for diagnosing and repairing disc brake system problems</p> <p>Recognize proper procedure for diagnosing and repairing drum brake system problems</p> <p>Perform proper inspection, diagnosis and repair of brake system warning devices</p> <p>Outcomes 1 and 3</p> <p>Perform proper inspection, diagnosis and recognize needed repairs on ABS anti-lock brakes</p> <p>Perform repairs and adjustments to ABS anti-lock brakes</p> <p>Outcomes 1 and 4</p> <p>Recognize proper procedure for diagnosing and replacing power brake boosters and master cylinders</p> <p>Perform proper inspection, diagnosis and recognize needed service on master cylinders and power brake boosters</p> <p>Perform repairs and adjustments to the various styles of parking brake mechanisms</p>	<p>Evaluation Methods for determining level of student performance of objectives</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p> <p>Quizzes and exams; NATEF checklist</p>

List all new resources needed for course, including library materials.
None

MASTER SYLLABUS

Student Materials:

List examples of types		Estimated costs
Texts Supplemental reading Supplies Uniforms Equipment Tools Software	Today's Technician Series; Delmar Publishing; ISBN –	\$ 100.00

Equipment/Facilities: Check all that apply. (All classrooms have overhead projectors and permanent screens.)

Check level <u>only</u> if the specified equipment is needed for <u>all</u> sections of a course. <input type="checkbox"/> Level I classroom Permanent screen & overhead projector <input type="checkbox"/> Level II classroom Level I equipment plus TV/VCR <input checked="" type="checkbox"/> Level III classroom Level II equipment plus data projector, computer, faculty workstation	<input type="checkbox"/> Off-Campus Sites <input type="checkbox"/> Testing Center <input checked="" type="checkbox"/> Computer workstations/lab <input type="checkbox"/> ITV <input type="checkbox"/> TV/VCR <input type="checkbox"/> Data projector/computer <input type="checkbox"/> Other _____
--	--

Assessment plan:

Learning outcomes to be assessed (list from Page 3)	Assessment tool	When assessment will take place (semester & year)	Course section(s)/other population	Number students to be assessed
Read and interpret vehicle service manuals	Common departmental exam; NATEF checklist	Fall 2011 and every three years thereafter	All students enrolled	Approximately 30 students
Diagnose and repair disc and drum brake systems and components	Common departmental exam; NATEF checklist	Fall 2011 and every three years thereafter	All students enrolled	Approximately 30 students
Remove and replace brake system components as well as anti-lock (ABS) brake components	Common departmental exam; NATEF checklist	Fall 2011 and every three years thereafter	All students enrolled	Approximately 30 students
Diagnose and replace power brake booster and master cylinders.	Common departmental exam; NATEF checklist	Fall 2011 and every three years thereafter	All students enrolled	Approximately 30 students

Scoring and analysis of assessment:

- Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric/scoring guide.
 Common departmental exam will be scored using an answer sheet
 NATEF checklist will be scored using the departmentally-developed rubric (attached).
- Indicate the standard of success to be used for this assessment.
 70% of the students will score an overall average of 70% or higher
- Indicate who will score and analyze the data (data must be blind-scored).
 Departmental faculty will blind-score data when possible.
- Explain the process for using assessment data to improve the course.
 Assessment data will be evaluated to identify any areas of weakness. Program and course instruction will be reviewed to identify ways to improve student performance.