



Figure 1: Owens Logo.

**Course Syllabus
SEMESTER
School of STEM**

<i>Course Name:</i>	Automotive Brakes
<i>Course & Section Number:</i>	AUT113-XXX
<i>Meeting Day(s) & Time(s):</i>	
<i>Credits:</i>	3
<i>Contact Hours:</i>	1Lecture 6 Lab
<i>Instructor's Name:*</i>	
<i>Office Hours & Location:</i>	
<i>OCC Phone:</i>	
<i>OCC Email:**</i>	

Catalog description:

Operation and repair of automotive braking systems is covered. Includes troubleshooting, repair of disk and drum brakes, brake boosters along with the machining of drums and rotors.

Prerequisite/Corequisites: None

Course Materials:

State the name of the text, course materials, and all required readings.

MODERN AUTOMOTIVE TECHNOLOGY (TEXT + COMMON CARTRIDGE FOR LMS,
1YR. INDV. ACCESS KEY PACKET)

JAMES DUFFY

ISBN13: 9781649254153

EDITION: 10TH

FORMAT: PAPERBACK W/ ACCESS CODE

PUBLISHER: GOODHEART WILCOX COMPANY

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*If a **print book, e-book, or access code** is required for class, you can access the Owens Community College e-Campus Bookstore by accessing the online link, called “Find Books” on the course schedule for each course section. See the example below.*

OER and Owens Community College Library Resources (Open Educational Resources are free online materials for instructor and student use. Some OER material may be available in print in the Owens Community College Library.)

Inclusive Access (I.A.) Materials are included in the cost of the course to save students money through lower negotiated rates with publishers. Courses containing I.A. materials will have it noted on the online class schedule. If your course includes I.A. digital materials, you will receive an email with subject line, “Your inclusive Access Materials,” and it will include any codes or digital links.

The email will come to your Owens Community College email from the Owens e-Campus Bookstore on the first day of class, if not before. Be sure to check your spam (junk email) if you do not find it in your inbox. If the email is not in your inbox or spam folder, contact your instructor immediately. You may also see a folder at the top of your course labelled “Course Materials by eCampus.” This folder will contain any needed codes or links to needed materials.

If the I.A. materials also include a printed book or are in print form, the item will be shipped to your address of record automatically based on your enrollment in the course. Please note that some courses do not include printed materials in I.A. and those materials would need to be purchased separately using the link on the course schedule. When you access the Find Books link you will see which items in a course are included in I.A.

Technology, Lab, and File Requirements:

Alldata <https://my.alldata.com/ip>

Shop Key Pro “no pass word needed”

Identifix: NAME PW: NAME

Academic Support

Disability Services Resource Center: If you have a disability or acquire one, you may be entitled to receive reasonable accommodations intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to register for accommodations, please contact the Disability Resource Center at 567-661-7007, email disability@owens.edu, visit <https://www.owens.edu/disability/>, or stop by College Hall 124.

Tutoring Services: Owens Community College offers academic tutoring and assistance in a variety of subjects including: accounting, computing, economics, mathematics, science, and writing. For more information go to: <https://www.owens.edu/successcenters/>.

Counseling Services: Counseling Services provides assistance to students experiencing personal, educational, interpersonal/relationship, family, social, or psychological difficulties. If you feel you may benefit from this service, please contact them at counselingservices@owens.edu. More information is at <https://www.owens.edu/counseling/>.

Campus and Community Connections: The Center for Campus and Community Connections (College Hall 123) is a walk-in office created to provide retention support through resource stability initiatives and community connections. Go here for more information: <https://www.owens.edu/connection/> or contact connections@owens.edu

Owens Library: The Owens Library offers two locations (Toledo and Findlay) as well as online resources. For more information visit <https://www.owens.edu/library/>.

Students can find more information on campus resources, student support, student life, and security at this [link](#).

General Information

Student Code of Conduct: All students are expected to follow Owens Community College's Student Code of Conduct, which includes academic honesty, encompassing plagiarism. See the Board Policy for more information.

Anti-Discrimination and Harassment & Title IX/Sexual Misconduct: All students, faculty, and staff are expected to follow Owens Community College's Anti-Discrimination and Harassment Policy and the College's Title IX Policy/Sexual Misconduct Procedures and Guidelines. The College strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments.

Religious Accommodations: A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a written email notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction. Alternative accommodations are not retroactive, and no academic penalty will be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu. The policy may be found on the Owens website: [3358:11-2-63 Accommodation](#) for a Student Absence for the Observance of Religious Beliefs and Practices Policy

Document Collection: Throughout the semester, your instructors may ask for a variety of assignments including tests and/or quizzes for student learning of institutional general education competencies or program assessment. Please save all your class materials until the end of the semester.

Classroom Admittance: OCC classes shall only be attended by the officially registered OCC students or perspective students, instructor of record, guest lecturer, or substitute. Visitors are not permitted to be in the classroom and should not be invited to attend or participate in the class. See

[FERPA](#) regulations for more information.

Student Responsibilities & Instructor Expectations

Instructor Expectations:

General Information

For information on FERPA, Cheating and Plagiarism, Assessment of Student Learning Outcomes and Student Code of Conduct, please refer to the appropriate section of the current Owens Community College Catalog online.

TOOL ROOM

The Transportation Technologies uses a central tool room to supply students with the tools needed during their lab time on campus. The students will be required to have an Owens student ID to acquire the tools. The student who signed out the tools is responsible for those tools and will be charged the replacement cost if they are lost or misplaced. Check with the tool room attendant regularly to make sure your account is cleared.

Specific Course Rules & Classroom Procedures:

1. The student is responsible for all material discussed in class, handed out, seen or heard in visual/audio, or written on the board.
2. The student is responsible for all work assigned whether discussed in class or not.
3. Any missed classes, tests, or assignments must be made up by the end of the semester through agreement with the instructor.
4. The instructor, with permission of the chairman, whenever appropriate and necessary, reserves the right to amend, adjust, or deviate from the course outline and lecture topic areas to assure the students of the best possible education from the course.

Safety Glasses

Students will not be permitted to attend lab classes without the required safety glasses.

Safety

Since personal safety is a major concern of both this College and the employers, students will be expected to conduct themselves in a safe manner at all times. Students will be required to follow safety requirements pertaining to: safety glasses, clothing, labs, and work procedures.

(Remember SAFETY is everyone's job!)

- Computer Headphones are required.
- ABSOLUTELY NO DOWNLOADING IN COMPUTER LAB.

Specific Course Rules: (This can include but is not limited to: policies on attendance, make-up/late work, class participation, tape recording, cell phone use, and electronic device use.)

Lab Safety Policy

Safety is very important for everyone. Safety guidelines are to be adhered to in performing all tasks.

1. Safety glasses must be worn at all times upon entering the lab areas. No exceptions.
2. Proper clothing and shoes are to worn in the labs.
3. Full-length pants, proper work short sleeve or long sleeve shirts, and appropriate industry related footwear (non-slip soles, puncture proof material, steel toe, etc.) must be worn in the lab areas.
4. Loose clothing, scarves, ties, shorts, jewelry, etc. are not permitted while working in the labs. Long hair should be pulled up.
5. Hearing protection, masks, gloves, and respirators should be used when directed by your instructors.
6. Be aware of your surroundings and report anything potentially unsafe to your instructor or other college employee. When in doubt ask!

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What You Will Learn in the Course

Course Outcomes: The student given the vehicle or component and the tools and equipment will, with at least 90% accuracy:

1. Identify and explain the operation of disc brakes and each component and demonstrate servicing techniques.
2. Identify and explain the operation of drum brakes and each component and demonstrate servicing techniques.
3. Identify and explain the operation of brake hydraulic components and demonstrate servicing techniques.
4. Identify and explain the operation of Power master brake components and demonstrate servicing techniques.
5. Identify and explain the operation of Hydro-Boost brake components and demonstrate servicing techniques.
6. Pack and service bearings.
7. Demonstrate correct shop safety & maintenance.

Student Learning Outcomes:

TASK LIST

Throughout the term of this course, students will perform or have demonstrated to them the following tasks. All tasks must be performed according to manufacturer instruction/requirements, any deviation must be approved by the instructor prior to the next step.

1. Check master cylinder for internal and external leaks and proper operation; determine necessary action.
2. Remove, bench bleed, and reinstall master cylinder.
3. Diagnose poor stopping, pulling or dragging concerns caused by problems in the hydraulic system; determine necessary action.
4. Inspect brake lines, flexible hoses, and fittings for leaks, dents, kinks, rust, cracks, bulging or wear; tighten loose fittings and supports; determine necessary action.
5. Fabricate and install brake lines (double flare and ISO types); replace hoses, fittings, and supports as needed.
6. Select, handle, store, and install brake fluids to proper level.
7. Inspect, test, and replace components of brake warning light system.
8. Bleed (manual, pressure, vacuum or surge) brake system.
9. Flush hydraulic system.
10. Remove, clean (using proper safety procedures), inspect, and measure brake drums; service or replace as needed.
11. Mount brake drum on lathe; machine braking surface.
12. Remove, clean, and inspect brake shoes, springs, pins, clips, levers, adjusters/self-adjusters, other related brake hardware, and backing support plates; lubricate and reassemble.
13. Remove, inspect, and install wheel cylinders.
14. Pre-adjust brake shoes and parking brake before installing brake drums or drum/hub assemblies and wheel bearings.
15. Install wheel, torque lug nuts, and make final checks and adjustments.

16. Remove caliper assembly from mountings; clean and inspect for leaks and damage to caliper housing; determine necessary action.
17. Clean and inspect caliper mounting and slides for wear and damage; determine necessary action.
18. Remove, clean, and inspect pads and retaining hardware; determine necessary action.
19. Reassemble, lubricate, and reinstall caliper, pads, and related hardware; seat pads, and inspect for leaks.
20. Clean, inspect, and measure rotor with a dial indicator and a micrometer; follow manufacturer's recommendations in determining need to machine or replace.
21. Refinish rotor according to manufacturer's recommendations.
22. Adjust calipers with integrated parking brake system.
23. Remove and replace rotor.
24. Test pedal free travel with and without engine running; check power assist operation.
25. Check vacuum supply (manifold or auxiliary pump) to vacuum-type power booster.
26. Inspect the vacuum-type power booster unit for vacuum leaks; inspect the check valve for proper operation; determine necessary action.
27. Inspect and test hydro-boost system and accumulator for leaks and proper operation; determine necessary action.
28. Check parking brake cables and components for wear, rusting, binding, and corrosion; clean, lubricate, and replace as needed.
29. Check parking brake operation; adjust as needed.
30. Check operation of parking brake indicator light system.
31. Check operation of brake stop light system; adjust and service as needed.
32. Replace wheel bearing.
33. Research applicable vehicle and service information, such as brake system operation, vehicle service history, service precautions, and technical service bulletins.

34. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, calibration decals).
35. Diagnose pressure concerns in the brake system using hydraulic principles (Paschal's Law).
36. Diagnose wheel bearing noises, wheel shimmy, and vibration concerns; determine necessary action.
37. Remove, clean, inspect, repack, and install wheel bearings and replace seals; install hub and adjust wheel bearings.
38. Test brake fluid for contamination.
39. Describe importance of operating vehicle to burnish/break-in replacement brake pads according to manufacturer's recommendations.

Grading Procedure:

GRADE COMPILATION:

Lab	60%
Quiz	30%
Final Exam	10%
Total	100%

GRADE SCALE:

94-100	A
87-93	B
78-86	C
70-77	D
0-69	F

Tentative Class Assignments:

Disclaimer: The instructor reserves the right to amend this syllabus as deemed necessary and will communicate such amendment to the students in the course. Please note that while unlikely, there is a possibility courses might need to change the delivery method due to external issues like public health concerns, weather issues, etc. If this happens, the college will communicate any changes via email and/or other communication methods.