IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	**FALL 2025**	Instructor Name:	**Ricardo Pradis**
Course Title & #:	**AUTOMOTIVE BRAKES AUT-125**	Email:	**ricardo.pradis@imperial.edu**
CRN #:	**10561**	Webpage (optional):	
Classroom:	**BLDG 1100**	Office #:	**1100 bldg.**
Class Dates:	**AUG 11-DEC 6**	Office Hours:	**7:30 – 8:00 AM**
Class Days:	**M-W**	Office Phone #:	**760-355-6403**
Class Times:	**8:00 – 11:10 AM**	Emergency Contact:	**760-355-6361 (Secretary)**
Units:	**4.0**	Class Format:	**Face to Face**

Course Description

This course covers the principles and instruction in disassembly, inspection, installation, and adjustments of the modern brake system. Laboratory activities stress brake system diagnosis, repair, machining, and overhaul procedures and proper use of tools and equipment utilized in the industry. Upon successful completion of this course, students are prepared to take the Automotive Service Excellence (ASE) certification examination in brakes. (C-ID AUTO 150 X) (CSU)

Course Prerequisite(s) and/or Corequisite(s)

None

Student Learning Outcomes

1. Identify and interpret brake system concern; determine necessary action.
2. Diagnose pressure concerns in the brake system using hydraulic principles. (Pascal's Law)
3. Diagnose poor stopping, noise, vibration, pulling, graving, dragging or pedal pulsation concerns; determine necessary action.
4. Identify and inspect electronic brake control systems components; determine necessary action.

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Comply with all safety shop procedures associated with the handling of all hazardous materials in accordance with the regulations.
2. Correctly identify the major components of the automotive braking system.
3. Be familiar with different types of parking, combination, and anti lock brake (ABS) systems.
4. Be familiar with different types of brake fluids and master, wheel, and caliper brake cylinders.
5. Understand the operation and service of different types of power-booster units.
6. Measure and adjust brake pedal according to manufacturer's specifications. Check brake system for internal and external leaks and proper operation. Inspect brake lines and fitting for brake fluid leaks or damage and replace or repair (double flare) brake lines. Diagnose poor brake stopping, pulling or noise problems. Inspect, test, adjust and replace metering brake valves, brake warning light system. Flush and bleed (Manual, Pressure or vacuum) Hydraulic brake system.
7. Diagnose brake problem. Remove inspect, and measure brake drum for excessive wear, cracks or other damage. Mount brake drum on lathe machine using correct setting. Complete brake job overhaul. Remove and service wheel cylinders. Adjust brake lining and parking brake before installing brake drums. Torque all lug nuts to factory specification.
8. Diagnose poor stopping, noise pulling or other brake problem. Remove disc calipers, assemble and inspect for wear, leaks and damage. Reassemble, lubricate and re-install caliper and related hardware. Clean, inspect and measure rotor with a dial indicator and compare measurements with specifications. Mount disc brake in lathe machine and finish rotor according to specifications. Fill master cylinder with recommended fluid and seat pads, inspect caliper for leaks.
9. Test brake pedal supply with vacuum gage for power booster operation. Inspect all vacuum hoses for vacuum leaks, check valve for proper operation.
10. Diagnose wheel bearing problem such as noises, wheel shimmy and vibration problem. Remove, clean, inspect, repack and reinstall race and wheel bearing and replace bearing seal. Adjust to wheel bearing according to specifications.
11. Check parking brake cables and components for wear or damage. Check parking brake operation with transmission in gear, check operation of parking brake indicator and light system, operation of brake stop light system.
12. Inspect, test and services anti brake system. Diagnose poor stooping, wheel lockup, noise problems and other related brake problems. Diagnose anti-lock brake system and electronic control (s) and components. Depressurized high

pressure components of the anti-lock brake system and use recommended safety procedures from manufacturers. Bleed the anti-lock brake system's front and clear hydraulic circuits following manufacture's procedures. Perform a fluid pressure (hydraulic boost) diagnosis on the high pressure anti lock brake system (ABS). Remove and install anti-lock brake system electrical/electronic components. Diagnose anti-lock brake system braking problem cause by vehicle modification.

13. Be familiar with Automotive Services Excellence (ASE) examination requirements, and prepare to successfully pass exam.

Textbooks & Other Resources or Links

Textbook: G-W Modern Automotive Technology 10th Edition ISBN: 978-1-64564-688-4

Course Requirements and Instructional Methods

Method of Instruction:
Methods of instructions may include, but are not limited to, the following: lectures, textbook worksheets, hands-on worksheets, internet readings, large and small group discussions, audiovisual aids, and demonstrations.
Out-of-class

Library computer software assignment. Read, review and answer the Level I, Level II, and Level III ASE Questions. After completion students will print out a report to find out the level where he/she needs support.

Reading and Writing

Read, review and answer Automotive Service Excellence (ASE) questions from ASE A5 class booklet motor age. When finished with assignment, The instructor will review each statement with live brake transmission components. The assignment consists of 1. General brake systems diagnosis-10 questions. 2. Hydraulic system diagnosis and repair-16 questions. 3. Drum brake diagnosis/repair- 6 questions. 4. Disc brake diagnosis/repair-13 questions. 5. Power assist units diagnosis/repair-4 questions. 6. Miscellaneous diagnosis/repair-7 questions. 7. Anti-Lock brake system Diagnosis and repair-9 questions.

Course Grading Based on Course Objectives

Grading Criteria:

1. Grading system:
    - A=90%-100% of points= Excellent
    - B=80%-89% of points= Good
    - C*=70%-79% of points= Satisfactory
    - D= 60%-69% of points= Pass, less than satisfactory
    - F= Less than 60% of points= Failing

2. Very important:
    - **Mid-Term** will be given on Oct. 8.
    - **Final-Exam** will be given on Dec.3.

- There are no make-up exams unless you have a very good reason and plan with the instructor before the exam.
- Final grades can be raised or lowered based on your preparation and participation in class. It benefits you to be engage and participative.

Grades:

	Points
Book worksheets, quizzes.	140
Lab activity, hands-on worksheets.	240
Mid-term	60
Final exam	60
Total points	500

Course Grade:
The course grade is based on total points accumulated during the semester. There is a total of 500 points available. Grades are determined by dividing the total points you earn by the total points available to get your percentage. (Total points may vary if I change the assignments in a particular week).

Grading of Hands-on Assignments:
The most common problem students experience is not being detailed enough in their answers and not spending the right amount of time in the repair procedures. Always be as specific as you can and use examples from your readings. Make sure to answer all parts of the questions. Points will be deducted for inadequate responses. Feedback will be given after each assignment and, hopefully, you will improve as you proceed with the course. The following grading rubric is used when grading assignments.

	Grading Rubric for Hands-on Assignment	Points
A	Focused and clearly organized. Contains critical thinking and content analysis. Convincing evidence is provided to support conclusions. Ideas are clearly communicated. Clearly meets or exceeds assignments requirements.	18-20
B	Generally focused and contain some development of ideas, may be simplistic or repetitive. Evidence is provided which supports conclusions. Meet assignments requirements.	16-17
C	May be somewhat unfocused, underdeveloped, or rumbling. But does have some coherence. Some evidence is provided which support conclusions. Meets minimum assignment requirements.	14-15
D	Unfocused, underdeveloped. Minimal evidence is used to support conclusion. Does not respond appropriately to the assignment.	12-13
F	Minimal effort by the student. Unfocused, underdeveloped. Evidence is not used to support conclusion. Block overall understanding. Does not meet assignment requirements.	0-11

Academic Honesty (Artificial Intelligence -AI)

IVC values critical thinking and communication skills and considers academic integrity essential to learning. Using AI tools as a replacement for your own thinking, writing, or quantitative reasoning goes against both our mission and academic honesty policy and will be considered academic dishonesty, or plagiarism unless you have been instructed to do so by your instructor. In case of any uncertainty regarding the ethical use of AI tools, students are encouraged to reach out to their instructors for clarification.

Accessibility Statement

Imperial Valley College is committed to providing an accessible learning experience for all students, regardless of course modality. Every effort has been made to ensure that this course complies with all state and federal accessibility regulations, including Section 508 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and Title 5 of the California Code of Regulations. However, if you encounter any content that is not accessible, please contact your instructor or the area dean for assistance. If you have specific accommodations through ***DSPS***, contact them for additional assistance.

We are here to support you and ensure that you have equal access to all course materials.

Course Policies

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Automotive Technology Classroom & Shop Policy

Shop/ Lab Area

- Safety test must be passed to work in the shop and complete required lab exercise.
- Safety glasses are required to be worn at all times while in the shop area, safety glasses are the student responsibility (students not wearing safety glasses will be ask to leave the class for that day no exceptions).
- Clean up your area and any other lose debris or trash.
- Wear all required safety protection and comply with posted signs.
- No shorts or open toe foot wear, always be prepared to go into the lab area.
- Comply with tool check out policy and return tools clean.
- Do not perform any work on any vehicle outside the assigned task without permission from your instructor.

Parking:

No student parking by the building, the only exception is on lab time if your vehicle is a project (instructor approved). Speed limit must be kept at or under 5MPH, no loud music.
A parking permit is required at all times.

Projects:

All projects are to be taken with the student's unless otherwise approve by the instructor.
All approve projects must be removed from campus prior to finals.
All projects must have a written work order (R/O).

Shop Maintenance:

All work will cease 20 minutes prior to end of class.
All work areas must be cleaned.
Tools must be cleaned and returned to the tool room.
Any broken or missing tools must be reported immediately. Tools are student's responsibility.

Other Course Information

Work-based Learning

Career possibilities in the automotive industry:

Work-based learning (WBL) allows student to apply classroom content in professional settings while gaining real-work experiences. These opportunities will provide you with a deeper, more engaging and relevant learning environment. Some examples of WBL assignments are job shadowing, informational interviews, and guest speakers. In this course, you will be working on workplace simulations and will be using Ford Service Training online program. It is intended to provide students with simple knowledge (basic) to complex skills (advance) training.

Contact:

Office Phone: (760) 355-5721
Email: careerservicescenter@imperial.edu

IMPERIAL VALLEY COLLEGE

Hours of Operation:
Monday - Friday; 8:00 a.m. to 5:00 p.m.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

Anticipated Class Schedule/Calendar

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 Aug 11-15	Syllabus & Introduction, Ford Service Training Chapter 5 Auto Shop Safety	Pages 55-66
Week 2 Aug 18-22	Chapter 1 The Automobile Lab: Use Lift and auto Inspection	Pages 3-19
Week 3 Aug 25-29	Chapter 7 Service Information and work orders Lab. Service information using Pro-on-demand	Pages 78-86
Week 4 Sep 2-5	Chapter 6 Automotive Measurement Lab. Use of measuring tools	Pages 67-77
Week 5 & 6 Sep 8-12 Sep-15-19	Chapter 80 Brake System Technology Lab: Identify and inspect major braking system components, and types of brake systems, braking system hydraulics, drum, disc brakes, lines, hoses, master cylinder, brake pedal, brake system switches and valves, parking brakes, hybrid brakes.	Pages 1229-1248
Week 7 Sep-22-26	Chapter 74 Tire, wheel, and wheel bearing diagnosis. Lab: inspect tires and wheel bearing service	Pages 1119-1138
Week 8 Sep-29-Oct-3	Mid-Term	Exam
Week 9-10-11 Oct 6-10 Oct 13-17 Oct 20-24	Chapter 81 Brake system diagnosis, service, and repair Lab. Brake system problem diagnosis, brake vibration, grabbing brakes, pulling brakes, spongy brake pedal, low brake pedal, braking	Pages: 1249-1272

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
	noise, installing master cylinder, brake disc measurements, resurfacing disc brakes.	
Week 12-13-14 Oct 27- 31 Nov 3-7 Nov 11-14	Chapter 82 Advance breaking, traction control, and stability control systems. Lab: Inspect, diagnose, and repair anti-lock brake systems, ABS components, ABS service, scanning ABS, speed sensor service, abs bleeding, ABS modulator service.	Pages 1273-1290
Week 15 Nov 17-21	Chapter 24 Onboard diagnostics and scan tools Lab: use scan tools	Pages 295-307
Week 16 Dec 1-5	Preparation for final exam Final-Exam	Exam

*****Subject to change without prior notice*****