



Course Number and Title: AUT 119 Automotive Brake Systems

Campus Location:
Georgetown, Stanton

Effective Date:
2019-51

Prerequisite:
AUT 114 or concurrent, AUT 116 or concurrent, ENG 090 or ENG 091, MAT 120 or concurrent, SSC 100 or concurrent

Co-Requisites:
None

Course Credits and Hours:
3.00 credits
2.00 lecture hours/week
3.00 lab hours/week

Course Description:
This course introduces automotive brake systems, components, and service procedures. Laboratory experiences include hydraulic service, drum and rotor service, disc brake service, drum brake service, power brake service, and anti-lock brake service.

Required Text(s):
Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:
Hand tools, power tools, and safety glasses

Schedule Type:
Classroom Course

Disclaimer:
None

Core Course Performance Objectives (CCPOs):

1. Explain and identify various brake system designs. (CCC 1; PGC 2)
2. Use equipment and practice procedures to maintain safety. (CCC 2, 3, 5, 6; PGC 1, 2, 4)
3. Explain and identify the appropriate brake service as necessary. (CCC 2, 3, 5, 6; PGC 1, 2, 4)
4. Explain and apply knowledge of the various anti-lock brake systems (ABS). (CCC 2, 3, 5, 6; PGC 1, 2, 4)
5. Adhere to simulated shop procedures. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 2, 3, 4, 5)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Explain and identify various brake system designs.
 1. Define and identify the operation of the following automotive brake systems and related components:
 1. Hydraulic systems
 2. Drum brakes
 3. Disc brakes
 4. Power assist units
 5. Miscellaneous systems/components (wheel bearings, parking brakes, and related electrical systems)
 2. Define and identify the operation of the anti-lock brake system.
2. Use equipment and practice procedures to maintain safety.
 1. Display proper use of floor jacks, automotive lifts, jack stands, and brake cleaning equipment.
 2. Display proper use of the brake lathes and related brake hand tools.
3. Explain and identify the appropriate brake service as necessary.
 1. Use appropriate service manuals and reference materials to evaluate, diagnose, maintain, and repair the following automotive brake systems and related components according to manufacturers' specification:
 1. Hydraulic systems
 2. Drum brakes
 3. Disc brakes
 4. Power assist units
 5. Miscellaneous systems/components (wheel bearings, parking brakes, and related electrical systems)
 2. Verify and repair induced fault.
 3. Perform proper brake bleeding procedures.
 4. Identify various brake system malfunctions.
 5. Measure various components for wear.
 6. Remove and install various brake system components.
4. Explain and apply knowledge of various anti-lock brake systems (ABS).
 1. Identify and describe the function of the key elements of the ABS.
 2. Describe the operation of the ABS.
 3. Troubleshoot and repair various faults in the ABS.
5. Adhere to simulated shop procedures.
 1. Follow simulated shop rules for proper attire, including eye protection.
 2. Exhibit punctuality in a simulated shop lab.
 3. Check out, maintain, and return tools to simulate real shop practices.
 4. Perform the strategy-based diagnostic procedure to 100% proficiency.
 5. Work cooperatively in assigned teams as in a real shop atmosphere.
 6. Use time clock to show time management skills as needed in a real shop.
 7. Follow simulated shop rules and procedures for Environmental Protection Agency (EPA) regulations, material safety data sheet (MSDS), and material handling.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Final Course Grade:

Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
Summative Assessments - (8-10) Exams (equally weighted)	20 %
Summative Assessments - (4-5) Quizzes (equally weighted)	20 %
Summative Assessment – (Hands On) Laboratory Final Exam	30 %
Formative Assessments – (Minimum 6) Repair Orders, Work Books, Worksheets (equally weighted)	30 %
TOTAL	100%

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Use appropriate automotive diagnostic and service equipment, hand tools, and precision measuring devices to determine and perform the proper repair as necessary.
2. Interpret automotive electronic service information, service manuals, and diagnostic charts.
3. Document service repair procedures that accurately reference the 3Cs:
 1. Customer complaint verification
 2. Correct the problem
 3. Complete the repair
4. Employ proper automotive industry service facility safety practices.
5. Practice professional conduct as required in the automotive industry.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.