	<b>AUTO122N Automotive Brake Systems</b>	<b>Spring 2023</b>
<b>Department</b>	Industry and Transportation	
<b>Instructor</b>	Jason Felton	
<b>NCC Email</b>	jfelton@ccsnh.edu	
<b>Telephone Number</b>	(603)578-8950	
<b>Office Hours</b>	By Appointment Only	
<b>Office Location</b>	Automotive Building	
<b>Class Days/Meeting Time</b>	Lecture: Tuesday and Thursday 1:00 – 1:50 Lab: Thursday 8:00 – 11:50	
<b>Class Location</b>	Lecture: G286 Lab: Automotive Lab	

## Rationale:

The students in this course will learn how the braking systems in vehicles work and how to properly repair them

## Course Description:

The study of braking systems with an emphasis on the diagnosis and repair of hydraulic systems, disc and drum brakes, the machining of rotors, brake drums, brake line fabrication, ABS and stability control. Due to the safety nature of this course, students must earn a minimum of a C to continue.

## Course Competencies:

The study of braking systems with an emphasis on the diagnosis and repair of hydraulic systems, disc and drum brakes, the machining of rotors, brake drums, brake line fabrication, ABS and stability control. Due to the safety nature of this course, students must earn a minimum of a C to continue.

## Essential Questions:

What Safety precautions should I practice while performing work of this nature?  
What kind of specialty equipment should I be using while performing work of this nature?

What could be the result of not using the proper equipment or safety precautions while performing work of this nature?

## Required Materials:

Automotive Technology: Principles, Diagnosis and Service; 6th Ed. 2020

ISBN#9780135257272

Click on this link to access the NCC bookstore's website

<https://www.bkstr.com/nashuaccstore/home>

## Technology

In order to be successful at NCC, all students need a laptop or personal computer (PC) as well as reliable internet access. It is recommended that students purchase a laptop for in-class use. Specifications can be found by clicking on the link below. If you do not have Internet access or the right kind of computer equipment (e.g., laptop, webcam, etc.) you may be eligible for the college's technology lending program, which is a first come first served program. Click on this link for more information

<https://www.nashuacc.edu/technology>

Laptops that meet NCC technology specifications are available for purchase at the NCC bookstore. Financial aid may be used for purchases made at the bookstore. Contact the bookstore for more information

<https://www.bkstr.com/nashuaccstore/home>

## Supplemental Materials:

Notebook, Writing Utensil and tools

## Grading:

Point/letter grade equivalents:

100-94: A	76-74: C
93-90: A-	73-70: C-
89-87: B+	69-67: D+
86-84: B	66-64: D
83-80: B-	63-60: D-
79-77: C+	Below 60: F

Grading Weights:

10% Quizzes
5% Homework
10% Midterm exam
20% Final exam
20% Lab exam
35% Lab evaluation

## Diversity, Equity, and Inclusion Statement:

We are all responsible for creating a diverse, equitable, inclusive, and just environment. Thus, we must treat individuals with respect by valuing all types of diversity. This is fundamental in creating a welcoming and inclusive learning environment. Diversity may include multiple ways of identifying ourselves, including, but not limited to race, color, national origin, language, sex, disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. These diverse identities, among many others not mentioned, influence the perspectives our students, faculty, and staff bring to the NCC community. Through use of various approaches that enhance intellectually rich, respectful, safe, and inclusive learning environments, this dynamic process will demonstrate our sustained commitment at NCC. It is our core belief that diversity, equity, and inclusion promote excellence, collaboration, and innovation while also seeking justice.

## Available Support Services

**NCC Library:** Get help with research for your papers and assignments from the NCC librarian and staff. Email [ncclibrary@ccsnh.edu](mailto:ncclibrary@ccsnh.edu)

**Tutoring and Writing Center:** The Tutoring and Writing Center, located in the library, offers free academic support services to all NCC students. Meet in-person or via Zoom with experts who can tutor you in math or accounting or help you with writing for any course. Tutoring is drop-in or by appointment. View the current tutoring schedule at <https://library.nashuacc.edu/home/tutoring>

Online chat tutoring is also available 24/7 with *Smarthinking*. Find a link on the left navigation menu inside Canvas courses.

**Disability & Accessibility** (*Reasonable Accommodation Plan*): Students who think they may have or have a documented disability (*physical, learning, or mental health*) and/or had an IEP or 504 Plan in high school who may need classroom accommodations must meet with the Disability Services Coordinator to set up an NCC Reasonable Accommodation Plan (RAP). For more information view the Disability & Accessibility page: <https://www.nashuacc.edu/student-services/disability-accessibility-information> and/or contact Jodi Quinn, Disability Services Coordinator (office located in the library), at [jquinn@ccnsh.edu](mailto:jquinn@ccnsh.edu) or (603) 578-8996.

In order to receive reasonable accommodations, it is the student's responsibility to email the current semester's RAP to each instructor and as needed meet with instructors to discuss the Plan. Each term the student wants to utilize accommodations, the RAP must be renewed and the student provides the current term Plan to instructors even if provided a Plan to an instructor for a previous term course.

**Audio Record Classroom Lecture:** Please note that as a student in this class, you may have a classmate who by permission can audio record class lectures for

his/her learning purposes. **Only students with prior written permission** from the instructor or the Disability Services Coordinator may audio record class lectures - *for educational purposes only*. Students who audio record class lectures are prohibited from selling, transcribing, or distributing the recordings in *any manner* and are asked to delete the recordings when it is no longer essential for their learning purposes.

Instructors may record their own class lectures, activities, and discussions using electronic video, still photo, or audio recording for educational purposes, including academic research, professional development, and recording of course content for access through online learning and other formats. Every student present will be informed by the instructor of any recording at the beginning of class.

### **CARE Team**

If you need information or a referral to local resources in the areas of Mental Health or basic support services (such as food, clothing, shelter, substance abuse or others including domestic and sexual violence), you can email the NCC CARE team ([NCCCares@ccsnh.edu](mailto:NCCCares@ccsnh.edu)) and we will assist you in connecting to community resources. <https://nashuacc.edu/student-services/care-team>

**Student Assistance Program:** The Community College System of NH (CCSNH), which includes NCC, offers a Student Assistance Program (SAP) provided by Kepro to provide students with access to free confidential Student Counseling Services (SCS) by licensed mental health professionals in the local area and other supports 24 hours a day, 7 days a week, 365 days a year. Kepro's services are confidential. <https://nashuacc.edu/student-services/student-assistance-program>

## **Department Policies**

Cellphones, laptops, tablets and other electronic equipment should be shut off during class unless previously approved by instructor.

### **Attendance:**

#### **Industry and Transportation Attendance Policies**

We understand that sometimes "life happens" and you cannot get to class on time or at all but, all students are expected to attend each class for the full amount of time scheduled. It is an important part of your education and we want you to be successful.

All lectures and labs begin on the hour.

Absences: Any student that will miss a class should notify the instructor by phone, text or email prior to the beginning of the class. All unexcused absences and tardiness will result in accrued time towards the AF policy.

Students are responsible for any make-up work, missed quizzes and exams due to absence. It is the instructor's discretion to allow make-up work, take a quiz or exam.

If a student is absent or tardy more than the number of hours the course meets during a two-week period that student may be withdrawn from the course by the instructor. Time is cumulative.

**Required Tools:**

All students are required to possess hand tools per the *Required Tool List*. Each student is expected to have the tools available for each lab session. The instructor reserves the right to refuse admission to (or dismiss from) lab any student who is not regularly prepared with the required tools. All tools should be at the college no later than the first Monday in October.

**Tool Box Storage**

Nashua Community College and the Automotive Department require that students purchase a basic set of tools when taking any one of the automotive courses. This list can be found on the College's website.

Students are responsible for having the complete tool kit by the first week of October. The toolbox and its contents will be inspected to ensure every student has the mandatory tool kit.

Storage of student toolboxes is a privilege and as such, NCC will allow you to store your toolbox in our building for as long as you are enrolled and in good standing in automotive classes at the College.

You must remove your toolbox within 30 days of your last date of attendance of an automotive course. After 30 days, your toolbox will be considered abandoned; the box and its contents will become the property of NCC.

NCC is not responsible for theft or damage to your toolbox or any of its contents while being stored at the College.

Toolboxes may be left at the college during break so long as the student is registered for classes the following semester. If student chooses to leave their tools here, they will not be able to access them until classes begin after the break.

Students must have the key to their toolbox when they come to remove the box from the college.

Every toolbox and its contents must be inspected by one of the Automotive Department Faculty before the student can remove the toolbox.

## Shop Policies

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1. All students, faculty and visitors must wear safety glasses when using any power tools, striking tools, and/or when vehicles are on a lift. Work should always be stopped when visiting groups enter the shop floor.
2. All students are required to supply and wear their own personal protective equipment while on the shop floor; there are no exceptions to this policy.
3. All tools and equipment should be stored away when they are finished being used; student tool boxes must be locked and stored in their designated area/room at the end of class.
4. There will be no playing of music during labs, as it causes a distraction.
5. No food or uncovered drinks are allowed in the classroom and shop areas; only covered drinks are permissible.
6. Cell phone use is not allowed in the shop unless a student has permission from the instructor; all calls and text messages should be done before class, after class, or during breaks.
7. **All lab rooms must be cleaned at the end of each lab; there are no exceptions to this policy.**
8. Broken/malfunctioning tools and equipment should be reported to the instructor immediately.
9. Any vehicle left in the shop or outside for repairs must have the keys tagged and left with the instructor. All keys should be placed on the board in the office for vehicles that are left outside.
10. Only work pertaining to the course outline should be performed during lab times; i.e., no brake repairs during electrical class, etc. **There are no exceptions to this policy.**
11. Any student wishing to perform work on their own personal vehicle after class must make arrangements with one of their instructors to do so. It is at the instructor's discretion to allow such work to be performed, and instructors **MUST** be present for the entire time that the student is working in the shop.
12. A student may not perform work on any vehicle unless that student has been properly trained in that particular area. (For example, a student cannot replace brakes if they have not taken the brakes course).
13. Students cannot use any tools or equipment unless they have been trained prior to use by an NCC faculty member.
14. Any work performed after class cannot interfere with or disrupt any other class or activity. Students cannot "skip" another class to work on their vehicle.

15. Disabled vehicles should not be driven by students. Disabled vehicles should be pushed or pulled to where they need to go.
16. Any disabled vehicle left for repairs should be clearly marked with what the issue is (for example, "no brakes") and a note should be placed on the windshield or steering wheel.
17. Students MUST NOT operate any vehicle that is not legally registered, even their own. **Unregistered vehicles cannot be driven on campus.**
18. All invoices for vehicle repairs MUST be paid in full within 24 hours of completion of the repair. Any repair order with parts exceeding \$150.00 must be paid the same day or in advance of work being performed. All invoices are to be paid in the Business Office.
19. Students will be required to remove jackets and sweatshirts with draw strings or remove the draw strings while working in the lab, regardless of the activity.

## College Policies

**Non-Discrimination:** The NCC Equity Committee is designated to coordinate compliance with the Non-Discrimination Policy and handles all concerns of discrimination that occur on campus that are not covered under Title IX. View more information here [Non-Discrimination Policy and Grievance Procedure](#)

**Title IX:** Classroom instructors at Nashua Community College are encouraged to create and maintain a safe learning environment in which students feel able to share opinions and related life experiences in classroom discussions, in written work, and in meetings with professors. To the greatest extent possible, this information will be kept private. However, staff and faculty have a legal obligation to report information concerning sexual misconduct, violence and exploitation of individuals per federal statute and in compliance with established policies and procedures at Nashua Community College. If you have been subjected to sexual misconduct, violence or exploitation, we encourage you to contact your Title IX Coordinator, Vice President Lizbeth Gonzalez, for support and assistance. She can be reached at Nashua Community College, 505 Amherst Street, Nashua, NH, 603-578-8928 or [lgonzalez@ccsnh.edu](mailto:lgonzalez@ccsnh.edu). View more information here [Title IX Policy and Grievance Procedure](#)

**Attendance:** Regular attendance and active participation are essential for academic success. Every student should carefully review the department and college attendance requirements posted in the Department and College Policies Sections of this syllabus.

If a student must be absent from class, the student should contact his/her professor and follow the professor's make up policy listed in the syllabus under Course Expectations. In an online or hybrid class, measures of attendance and

active participation include contributing to discussion board, submitting an assignment, taking a test or quiz on Canvas, etc. Logging into Canvas does not count as class attendance or participation. (For a complete definition of active participation, see regular and substantive interaction statement in student handbook.)

Rarely, a student may experience a serious situation that prevents that student from attending class for an extended period. This could be for reasons such as illness/hospitalization, loss of childcare, or lack of transportation. In these situations, the student should notify his/her professor as soon as possible and contact the advising center for assistance  
[NCCAcademicAdvisingCenter@ccsnh.edu](mailto:NCCAcademicAdvisingCenter@ccsnh.edu).

**AF Policy:** If a student is absent more than the number of hours the course meets during a two-week period, the faculty may withdraw a student from the course with an "AF" grade. **In all cases**, faculty **will** issue an AF grade if a student has 1) missed more than two consecutive weeks of class and 2) failed to communicate with the instructor by responding to EAB attendance alerts and other outreach. **Students should also refer to department attendance policy under the Department Policies section of the syllabus.**

In addition, an instructor or administrator may issue an AF grade if a student's behavior violates the Student Code of Conduct and disrupts classroom instruction.

Please be advised that if the behavior of any student (or students) disrupts the learning of his/her classmates, the following steps will be taken by the instructor 1) verbal warning; 2) meeting with instructor and department chair; 3) filing of written complaint and referral to Vice President of Academic Affairs for possible removal from the course with AF grade.


An AF grade may also be issued if a student registered in a clinic, practicum, internship, or lab is deemed unsafe or performing in an unsatisfactory manner as determined by an evaluation by a faculty member/agency supervisor in accordance with department criteria and procedure.

An "AF" grade is calculated in the GPA as an "F". Students should refer to the student handbook for additional information about the AF policy.

**Canvas:** Canvas is the online learning management system used by instructors and learners at Nashua Community College. Instructors will post syllabi, course related documents and grades in Canvas. Students may be required to submit assignments and/or take assessments through Canvas and/or participate in discussion boards. **If class is ever cancelled because of instructor illness or inclement weather, students will need to check Canvas for their assignment.**

**24/7 Canvas Support:** To access support through email, phone or chat



click on the  icon. Students can also find guides, videos, and a Canvas community by clicking on the *CCSNH Resources* icon on the tool bar at the left of the Canvas screen then choosing Canvas Resources.

If you have forgotten your Easy Login Password information, please visit the following link: <https://password.ccsnh.edu/accounts/Reset>

EAB Alerts Faculty can issue "Alerts" for students at any time. The administration at NCC encourages professors to issue alerts for any student who may be having difficulty in the course. When a faculty member raises an alert, both the student and student's advisor receive an automated email based on the alert raised. Faculty can issue an alert through EAB Navigate on the college website or directly using the following link: <https://nashuacc.campus.eab.com>

**College Email System:** Nashua Community College has established a College email system as a means of the College sending official information to enrolled students, and for students to send communication to their instructors and College personnel. All students registered at NCC will be assigned a College email account/address to be used as the only email address for all email communication: 1) sent to the students from their instructors and from all College personnel; and, 2) sent by the students to their instructors and to all College personnel.

In addition:

- Students should check their College email account regularly to ensure they are staying current with all official communications. Official communication includes, but is not limited to, policy announcements, registration and billing information, schedule changes, emergency notifications and other critical and time sensitive information.
- Students should also check their college email account to be sure that they are current with all email communication from their faculty.
- The student email account/address should be the only e-mail address students use to send email to faculty and College personnel so that student email is recognized and opened.
- This service is provided exclusively to the students of NCC. Accounts are for individual use only, and are not transferable or to be used by any other individual.
- Students using their College email account do so under the policies set forth in the Student Handbook under "Student Computer Conduct Code".

**Sensitive Materials Policy:** During the semester, in order to cover certain academic topics, there may be occasions to view or discuss material which may not meet the student's own personal definition of appropriateness. At such times, every student has the right to decide not to participate. Every effort will be made by the instructor to notify students in advance of when such sensitive material will be used so that students can make alternative arrangements. Faculty will guide

students in the identification of alternate learning opportunities consistent with relevant course objectives so that students opting out of scheduled “sensitive” learning experiences will not be penalized academically in any way. Please note the opportunity to leave the classroom discretely is always available to each student when such sensitive material is being discussed. The student then has the responsibility before the next class meeting to inform the instructor as to the reason for leaving.

## Academic Conduct

All students are expected maintain high standards of academic integrity as they complete their coursework at NCC. Cheating and plagiarism are violations of the Student Code of Conduct and all instances of academic dishonesty are taken very seriously by the College.

**Cheating:** Cheating includes, but is not limited to: (1) use of any unauthorized assistance from other persons or technologies in taking quizzes, tests, or examinations or in the preparation and completion of class assignments; (2) dependence upon the aid of resources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) the acquisition, without permission, of tests or other academic material belonging to a member of college faculty, staff, or students; or (4) knowingly providing unauthorized assistance of any kind to another for the purpose of providing unfair advantage to the recipient in the completion of course assessments/assignments (sometimes known as facilitation).

When a student is found to have cheated on an academic assignment, it will be up to each instructor to determine the grading penalty. Depending on the severity of the incident, this could range from a warning to a loss of credit for the course. In all cases of cheating, the instructor will notify the student's advisor and the advisor will document the incident on EAB using advisor notes.

If any further incidents of cheating are reported to the student's advisor, the advisor or VPAA will file a complaint with the appropriate college Judicial Body. Additional sanctions may be imposed.

**Plagiarism:** Plagiarism is a serious violation of a student's academic integrity and the trust between a student and his or her teachers. Plagiarism is the act of a person presenting another person's work as if it were his or her own original work. Such acts of plagiarism include, but are not limited to:

1. A student submitting as his or her own work an entire essay or other assignment written by another person.
2. A student submitting as his or her own creation the artwork (including but not limited to a painting, drawing, photograph, object, digital representation) of another person.

3. A student taking word for word a section or sections of another person's work without proper acknowledgment of the source and quotation.
4. A student using statistics or other such facts or insights as if these were the result of the student's efforts and thus lacking proper acknowledgment of the original source.
5. The paraphrasing of another person's unique work with no acknowledgment of the original source.
6. Copying another student's work on a quiz or test.

Some instructors may consider self-plagiarism to be a form of plagiarism. Self-plagiarism includes **submitting the same paper** in response to two **different** assignments. Please consult with your instructor and carefully review instructor expectations posted on your syllabus if you have any questions.

When a student is found to have plagiarized an academic assignment, it will be up to each instructor to determine the grading penalty. **Depending on the severity of the incident**, this could range from a warning to a loss of credit for the course. In all cases of plagiarism, the instructor will notify the student's advisor by posting an alert on EAB Navigate. The advisor will then document the incident on EAB using advisor notes. If any further incidents of plagiarism are reported to the student's advisor, the advisor or VPAA will file a complaint with the appropriate college Judicial Body. Additional sanctions may be imposed. For other examples of Academic Misconduct and a full description of the Student Disciplinary Process, please refer to the NCC Student Handbook

### Credit Hour Guidelines

1. A credit hour shall be the equivalent of one (1) hour of classroom or direct faculty instruction and a minimum of two (2) hours of out-of-class student work each week for 15 or 16 weeks.
2. A credit hour shall be allocated based on the following:

Category	Contact Hours per Week	Contact Hours per Sem. (based on minimum 15 week semester)
Class	1	15
Laboratory	2 or 3	30-45
Clinical	3 to 5	45-75
Practicum, Fieldwork	3	45
Internship	3 to 6	45-90
Co-op	Variable by Dept.	Variable by Dept.

## Course Calendar AUTO122N Spring 2023

Week of	LECTURE/DISCUSSION	LAB	ASSIGNMENT
Jan 16	<b>Chapters 96 &amp; 97</b> Braking System Law and Principles	Brake Component Identification	Ch. 96 & 97 Quiz Questions
Jan 23	<b>Chapter 98</b> Brake Hydraulic Systems	Hydraulic System Component I.D. and Troubleshooting	Ch. 98 Quiz Questions
Jan 30	<b>Chapter 99</b> Hydraulic Valves and Switches	Hydraulic Valve and switch I.D.	Ch. 99 Quiz Questions
Feb 6	<b>Chapters 100 + 101</b> Brake Fluid, Lines and Bleeding	Brake line flaring, bending and bleeding	Ch. 100 + 101 Quiz Questions
Feb 13	<b>Chapter 103</b> Drum Brakes	Drum Brake Component I.D. and operation	Ch. 103 Quiz Questions
Feb 20	<b>Chapter 104</b> Drum Brake Diagnosis and Service	Drum Brake Disassembly and Reassembly	Ch. 104 Quiz Questions
Feb 27	<b>Chapter 105</b> Disc Brakes	Disc Brake Component I.D. and Operation	Ch. 105 Quiz Questions
Mar 6	<b>Chapter 106</b> Disc Brake Diagnosis and Service	Disc Brake Disassembly and Reassembly	Ch. 106 Quiz Questions
Mar 13	Spring Break – No Classes		
Mar 20	<b>Chapter 107</b> Parking Brakes	Parking brake I.D. and adjustment	Ch. 107 Quiz Questions
Mar 27	<b>Chapter 108</b> Machining Drums and Rotors	Brake Disc and Drum Measurement and Machining	Ch. 108 Quiz Questions
Apr 3	<b>Chapter 109</b> Power Brakes	Brake booster I.D., Testing, inspection and replacement	Ch. 109 Quiz Questions
Apr 10	<b>Chapter 110</b> ABS Components and Operation	ABS Component I.D. and function	Ch. 110 Quiz Questions
Apr 17	<b>Chapter 111</b> ABS Diagnosis and Service	ABS Troubleshooting with electrical testers	Ch. 111 Quiz Questions
Apr 24	<b>Chapter 112</b> Electronic Stability Control	ESC Troubleshooting	Ch. 112 Quiz Questions
May 1	Lab Final		

**This schedule is subject to change**