	Mechanical Electrical Systems II CRTN 235N Fall 2020
Department	Industry and Transportation
Instructor	Randolph Biggs
NCC Email	rbiggs@ccsnh.edu
Telephone Number	(978) 877-7195
Office Hours	By Appointment only
Office Location	Automotive Building Rm 7
Class Days/Meeting Time	Lecture Monday & Wednesday 1:00pm-1:50pm Lab Weds 2:00pm-4:50pm
Class Location	Automotive Building Lecture Rm 9 Lab Rm 6

Rationale:

This course is important because students need to be able to identify and correct broken and bent components in the steering, suspension, brake and tire systems

Course Description:

The study of automotive steering and suspension systems, braking systems, and drive trains. Students will have demonstrations and hands-on exposure to typical repairs encountered in a collision repair shop. Shop safety will be stressed and applied

Course Competencies:

Competency (Knowledge and Skills)	Critical Thinking Level
Students will be able to:	

Identify steering and suspension components and hardware.	Knowledge
Practice in inspecting, adjusting, removing and replacing steering and suspension components.	Application
Practice in inspection and replacement of steering wheel and steering column components.	Application
Solve various steering and suspension problems related to collision damage.	Application
Identify tire sizes, pressures, tire pressure monitoring systems, tire problems.	Knowledge
Solve vehicle handling problems related to collision damage.	Application
Practice in inspecting and replacing brake hoses, fittings and lines.	Application
Identify and handle brake fluids in accordance with local, state and federal regulations.	Knowledge
Practice in inspecting, adjusting and testing brake systems and components.	Application
Demonstrate knowledge of advanced brake systems, traction control, and stability control.	Application
Practice inspecting, removing, replacing and adjusting shift cables and linkages.	Application

Practice inspecting, removing, and replacing CV joints, drive shafts, universal joints, and drive axles.	Application
Practice in inspecting, removing and replacing electronic sensors, connectors and wires.	Application

Essential Questions:

1. Why is it important to be able to identify steering and suspension components?
2. Why is it important to be able to correctly identify tire sizes and ratings?
3. Why is it important to be able to identify and replace brake system components?

Required Textbook(s):

Auto Fundamentals 11th edition ISBN 978-1-61960-820-7

Supplemental Materials:

These may include notebook, additional readings and required tools

Course Expectations:

Attendance:

Class attendance is considered essential to academic success of students. Since there are constant learning opportunities between faculty members and students, and between students and other students within the classroom or lab, it is expected that students will attend each meeting of each course in which they are enrolled. In addition, the lesson disruptions caused by late arrivals and the resulting missed material is likely to negatively impact each student's learning experience. The instructor reserves the right to refuse admission to any student who repeatedly arrives late for class or lab. Attendance information is typically collected at the beginning of each class/lab meeting, consequently there is no distinction between absent and late. Furthermore, students may expect random, weekly participation quizzes on covered material and assigned reading. Participation quizzes are generally given at the beginning of

class. Only those students who are present, and on time, may participate. Participation quizzes are not eligible for make-up.

If a student is absent more than the number of hours a course meets in a two week period, (12 hours) the faculty may withdraw that student from the course with an "AF" grade any time during the semester. An "AF" grade is calculated in the GPA as an "F". There is no provision in the course calendar for repeating of lectures, labs or demonstrations due to absenteeism.

Make Up Policy:

Not all missed work is eligible for make-up. It is the student's responsibility to inquire about missed work at the first class meeting after returning from an absence. The instructor will determine eligibility and provide an appropriate assignment. Any approved assignment must be completed and turned in as directed. There is no provision for make-up of a midterm exam, final exam, or lab practical exam.

Grading:

5% Attendance

15% Quizzes and Homework

20% Midterm Exam

20% Final Exam

20% Lab Final Exam

20% Lab Performance

Grades will be assigned according to the following department scale:

A = 100 – 94

A- = 93 - 90

B+ = 89 – 87

B = 86 - 84

B- = 83 - 80

C+ = 79 – 77

C = 76 – 74

C- = 73 – 70

D+ = 69 – 67

D = 66 – 64

D- = 63—60

F = 59 or Below

****ALL Arts, Humanities, Communications & Design Department courses must use this grading scale when determining final grades.**

Available Support Services

Tutoring, The Writing Center, Available Academic Services: The Academic Success Center | located in the library offers academic support services which are open to all NCC students looking for additional help with their college assignments. Math tutoring and writing assistance are available. The Writing Center is for any student seeking assistance with the writing process for any class, not just College Composition. For more information and to view the tutoring schedules view here:

<http://www.nashuacc.edu/student-services/academic-success-center>

Classroom Accommodations: Students who have a documented disability (physical, learning, or mental health) and require reasonable classroom accommodations must meet with the Disabilities Support Coordinator to set up a NCC Reasonable Accommodation Plan (RAP). If you had an IEP or 504 in high school, you may qualify for a plan. If you would like more information or if you are not sure if you qualify for a plan, please contact Jodi Quinn, Disabilities Support Coordinator, located in The Academic Success Center in the library, 603-578-8900 ext. 1451. View additional information and the application here:

<http://www.nashuacc.edu/student-services/academic-success-center/disability-services> In order to receive classroom accommodations, it is the student's responsibility to meet with his/her instructor privately and provide a hard copy of the signed Reasonable Accommodation Plan (RAP) each term the student wants to utilize classroom accommodations even if the student has had that instructor in a previous term.

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 Disabilities Support 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.

Title IX Statement: 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 representative Lizbeth Gonzalez, 603-578-8900 x1528_ or lgonzalez@ccsnh.edu for support and assistance.

Additional information including resources can be found at: New Hampshire Coalition Against Domestic and Sexual Violence:
[http://www.nhcadv.org/Catchment%20map\(1\).pdf](http://www.nhcadv.org/Catchment%20map(1).pdf)

Department Policies

Students are responsible for completing assignments on time.
Students are expected to take notes. Not all covered material is in the book.
Students are expected to be professional and courteous.
Students are expected to arrive on time for classes/labs.
Students are expected to have the essential books/supplies/tools.
Students must maintain appropriate personal hygiene
Protective eyewear is required in any lab (shop).
Food is prohibited in all labs and classrooms during classes.
Lab service bays must be cleaned and/or washed at the end of each lab session.
All students must contribute to the clean-up process.
No students will be dismissed from lab session until service bays are clean.

There is no make up for this class. Assignments are due at the being of class and are listed on the course calendar. If you are going to miss a class, you must email the assignment that is due that day before that class meets. If there is a quiz that day and you emailed me that you will not be able to attend, you will be allowed to make up that quiz. It is your responsibility to meet with me BEFORE the next lecture meets to take said quiz

Students are expected to attend all their regularly scheduled classes, laboratory periods, and other academic exercises. Should an absence from regularly scheduled academic exercise be unavoidable (beyond a student's control), it will be the student's responsibility to communicate with the professor, preferably beforehand, concerning the absence. Documentation of said absence may be required by the professor.

Students are advised that absence from class, for whatever reason, does not excuse them from meeting course requirements and objectives.

If a student is absent more than six hours (for a four-credit course, the total is eight hours) of class time during the term or semester, the instructor may withdraw the student from class using an AF grade, which means an F will be averaged into the GPA. In addition to absences from class, tardiness and leaving class early also calculate into missed class time. To avoid this AF, if a student cannot continue to attend class for any reason, he/she should obtain a

withdrawal slip from the registrar and follow the process to officially withdraw. Students should also understand an AF grade can be assigned by an instructor or an administrator at any time for reasons other than poor grade performance or failure to meet attendance requirements e.g., violation of the Student Code of Conduct, disruptive behavior, etc. Students should refer to the student handbook for additional information about the AF policy.

It is the responsibility of the student to make up any missed class work, homework assignment, quizzes, or tests in accordance with the instructor's make-up policy.

Depending on the instructor's policy, late papers may or may not be accepted for full credit. See this syllabus for policy details.

All assignments must be typewritten, unless otherwise instructed by the teacher. Any work that is not typewritten will not be accepted.

Specific policy details for the above are outlined in this syllabus.

Revised: 12/18/17

College Policies

AF Policy: If a student misses more than the number of hours the course meets during a two-week period (e.g. six hours for a three credit course), the faculty may withdraw a student from the course with an "AF" grade. Please note that absences, tardies, and leaving class early all count towards "missed class time."


Students should also understand an AF grade can be assigned by an instructor or an administrator at any time for reasons other than poor grade performance or failure to meet attendance requirements e.g., violation of the Student Code of Conduct, disruptive behavior, etc.

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

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: All instructors at NCC will be using Canvas. Canvas is the online learning management system used by instructors and learners at Nashua Community College. Instructors may 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.

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.

To directly link to Canvas On Demand tutorials, please visit the following link:

https://community.canvaslms.com/community/answers/guides/video-guide#jive_content_id_Students

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

If class is ever cancelled because of instructor illness or inclement weather, students will need to check Canvas for their assignment.

College Email System: Nashua Community College has established a College electronic mail ("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.

Plagiarism Policy: 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 taking word for word a section or sections of another person's work without proper acknowledgment of the source and that the material is quoted.
3. 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.
4. The paraphrasing of another person's unique work with no acknowledgment of the original source.
5. Copying another student's work on a quiz or test.

When a student is found to have plagiarized an academic assignment, it will be up to each instructor to determine the penalty. Depending on the severity of the incident, this could range from a warning to a loss of credit for the assignment. In all cases of plagiarism, the student's program coordinator will automatically be notified and the incident will be documented. If any further incidents of plagiarism are reported to the student's program coordinator, additional sanctions will be imposed. These may include notification of the Vice President of Academic Affairs; loss of credit for the course; suspension or dismissal from a department program; academic probation; and/or expulsion from the College.

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

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Week #	Week Beginning	Lecture/Discussion	Lab	Assignment
1	Aug 31	Chap 24 suspension systems	Identify components	Due Mon - Chap 24 questions
2	Sept 7	Chap 24 suspension systems	Identify Handling problems	
3	Sept 14	Chap 24 suspension systems	Shock and Strut service Job Sheet 180, 181	Monday quiz chap 24
4	Sept 21	Chap 25 Steering systems	Identify Components	Due Mon - Chap 25 Questions
5	Sept 28	Chap 25 Steering systems	Steering Inspection Job sheet 187	
6	Oct 5	Chap 25 Steering systems	Steering Column Service Job sheet 189	Monday quiz chap 25
7	Oct 12	Chap 26 Wheels and tires	Tire Id and diagnosis Job sheet 175	Due Mon - Chap 26 questions
8	Oct 19	Chap 27 wheel Alignment Midterm	Pre alignment inspection Job sheet 192	Due Mon - Chap 27 Questions
9	Oct 26	Chap 27 wheel Alignment	Interpret alignment angles SSS36	
10	Nov 2	Chap 27 wheel Alignment	Alignment procedures SSS40	Monday quiz chap 27
11	Nov 9	Chap 23 Brakes	Identify Components inspection and measurement BKS34	Due Mon - Chap 23 questions

12	Nov 16	Chap 23 Brakes	Remove and replace drum brakes	
13	Nov 23	Chap 23 Brakes	Remove and replace disc brakes	Monday Quiz chap 23
14	Nov 30	Chap 21 Axles and Drives	Remove and replace cv axles Job sheet 220	Due Mon - Chap 21 questions
15	Dec 7	Review	Review	Monday final exam
16	Dec 14		Lab Final	

This schedule is subject to change. In the event of class cancellation due to inclement weather or instructor illness, students are directed to the course Canvas site for an alternate assignment for that day.

Updated: 5/18