	<b>Structural Analysis and Measuring CRTN211N Fall 2020</b>
<b>Department</b>	<b>Industry and Transportation</b>
<b>Instructor</b>	<b>Karl Wunderlich</b>
<b>NCC Email</b>	<b>Kwunderlich@ccsnh.edu</b>
<b>Telephone Number</b>	Office 603-578-8977 Cell 978-566-1675
<b>Office Hours</b>	By Appointment only
<b>Office Location</b>	Automotive Building Rm 7
<b>Class Days/Meeting Time</b>	<b>Lectures:</b> <b>Monday – in person 8:00am-8:50am</b> <b>Wednesday – online 8:00am-8:50am</b> <b>Lab Monday 9:00am-11:50am in person</b>
<b>Class Location</b>	<b>Automotive Building</b> <b>Lecture Rm 9</b> <b>Lab rm6</b>

## Rationale:

This course is designed to provide students with the ability to determine and measure collision frame damage in full frame and unibody vehicles.

## Course Description:

Students will analyze collisions causing structural damage to full frame and unibody constructed vehicles. The study and practice of measuring damage using tape measures, tram gauges, mechanical measuring and computer aided laser measuring will be covered. Shop safety will be stressed and applied.

## Course Competencies:

### Competency (Knowledge and Skills)

Students will be able to

### Critical Thinking Level

Identify mash, sag, side sway, diamond and twist damage

Knowledge

Use three-dimensional measuring systems to diagnose structural damage

Application

Use tram gauges to diagnose structural damage

Application

Identify crush zones

Knowledge

Identify extent and direction of impact

Knowledge

Prepare and document sequence of repair

Application

## Essential Questions:

How do you identify frame damage by visual inspection of a vehicle?

How do you properly measure different vehicle frame types?

How do we reverse the damage caused in a collision?

## Required Textbook(s):

Auto Body Repair Technology 6th Edition By James E Duffy

ISBN:978-1-133-70285-6

## 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**

<b>C</b>	<b>=</b>	<b>76 – 74</b>
<b>C-</b>	<b>=</b>	<b>73 – 70</b>
<b>D+</b>	<b>=</b>	<b>69 – 67</b>
<b>D</b>	<b>=</b>	<b>66 – 64</b>
<b>D-</b>	<b>=</b>	<b>63—60</b>
<b>F</b>	<b>=</b>	<b>59 or Below</b>

**\*\*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](mailto: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.nhcadsv.org/Catchment%20map\(1\).pdf](http://www.nhcadsv.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](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 Course + Semester/Term

Week 1 Aug 31

Lecture: Review shop safety. History of auto body construction.  
 Lab: Measuring tools and their uses.  
 Reading: Review Chapter 2,9 review

Week 2 Sept 7

Lecture: Effects of impacts on vehicles  
 Lab: Determining collision conditions  
 Reading: Chapter 17 504-513

Week 3 Sept 14

Lecture: Linear measuring of vehicles  
 Lab: Using tram gauges  
 Reading: Chapter 523-527

Week 4 Sept 21

Lecture: Frame and Body dimensions

Lab: Identifying frame damage  
Reading: Chapter 17 513-523

Week 5 Sept 28

Lecture: ICAR measuring module  
Lab: Measuring frame damage  
Reading:

Week 6 Oct 5

Lecture: One, two, and three dimensional measuring  
Lab: Measure frame damage.  
Reading: Chapter 17 527-538

Week 7 Oct 12

Lecture: Review for midterm  
Lab: Continue measuring frame damage  
Reading: Review for midterm

Week 8 Oct 19

Lecture: Midterm exam  
Lab: Continue measuring frame damage  
Reading:

Week 9 Oct 26

Lecture: Mechanical measuring systems  
Lab: Using mechanical measuring systems  
Reading: Chapter 17 527-538

Week 10 Nov 2

Lecture: Computer based measuring systems  
Lab: using computer measuring systems  
Reading: Chapter 17 538-553

Week 11 Nov 9

Lecture: Upper body measurements  
Lab: Upper body measuring  
Reading: Chapter 17 538-553

Week 12 Nov 16

Lecture: Making a repair plan  
Lab: Construct a repair plan for frame damage  
Reading: Chapter 15 pgs 363-364

Week 13 Nov 23

Lecture: Measuring vehicles with a dedicated bench  
Lab: Continue Projects  
Reading:

Week 14 Nov 30

Lecture: Review for final exam  
Lab: Complete projects  
Reading: Review chapter 17

Week 15 Dec 7

Lecture: Written final exam  
Lab: Complete projects

Week 16 Dec 17

Lab: Lab Practical exam

**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