

## Course Policy, Procedures, and Syllabus

*Building Construction Program, Georgia Institute of Technology*

<b>Course Title:</b>	<b>Construction Mechanics</b>
<b>Course No:</b>	<b>BC 3640</b>
<b>Prerequisites:</b>	PHYS 2211 (Physics I) & BC 2620 (Construction Tech. II)
<b>Semester/Year:</b>	Fall 2010
<b>Instructor(s):</b>	John Fard
<b>Office:</b>	Navy ROTC Armory Building, room 117
<b>E-mail Address:</b>	jfard@gatech.edu
<b>Office Hours:</b>	By Appointment
<b>Required Textbooks:</b>	Statics and Strength of Materials for Architecture and Building Construction, 3 <sup>rd</sup> Edition – by Barry Onouye and Kevin Kane
<b>Course Description, Goal, and Objectives:</b>	<p>All physical objects have structures. Consequently, the design of structures is part of the general problem of design. It is not possible to understand fully how or why buildings are built the way they are without having some knowledge and understanding of their structures. Structural design requires integration of the structure into the whole physical system of the building. It is also necessary to realize the potential influences of structural design decisions on the general architectural design and the development of the systems for electricity, lighting, plumbing, HVAC, and constructability.</p> <p>Structural design is essentially a process involving the balancing between applied forces and the materials that resist these forces. Structurally, a building must never collapse under the action of assumed loads, whatever they may be. Tolerable deformation of the structure or its elements should not cause material distress or psychological harm. Structural design is more related to correct intuitive sense than to sets of complex mathematical equations – a convenient and validating tool by which the designer determines the physical sizes and proportions of the elements to be used. A structure, whether large or small, must be stable and durable, must satisfy the intended function(s) for which it was built, and must achieve economy or efficiency.</p> <p>Development of structural understanding begins with two subjects: statics and mechanics of materials. Statics studies how forces are developed to create equilibrium with the various loads acting on a whole structure and the individual components of that structure. Mechanics of materials searches out how these loads cause stresses and deformations in various materials and their configurations.</p> <p>The primary aim of this course is to develop and present structural concepts, introduce structural theory, and to provide a sound understanding of statics and strength of materials to establish a theoretical and scientific basis for understanding structural theory as it relates to building components.</p>

**Assignment and Evaluation:**

Final grades will be based on an aggregate point total for exams, quizzes, and classroom participation. Grades may be curved to provide a balance of intellectual challenge and academic reward. Course grading is as follows:

A	B	C	D	F
90% and above	80%-89%	70%-79%	60%-69%	<60%

**Points:** The following table summarizes the points for this course. Make-up exams are not allowed for any reason. All quiz and exam grades will become final one week after they are returned in class. The final exam is comprehensive.

	Percent
Quiz 1	10%
Quiz 2	10%
Quiz 3	10%
Exam 1	22.5%
Exam 2	22.5%
Final Exam	25%
<b>TOTAL</b>	<b>100%</b>

## COURSE POLICIES

In the following policies, 'you' indicates the 'student' and 'instructor' means 'faculty' or 'professor.'

**Policies and Expectations:** This course will be an intense and sometimes frustrating educational experience; it is necessary that we all contribute to its success by following the course policies. You should not only be in class, but also strive to participate in class discussions when appropriate.

**Assignment Deadlines:** All assignments given are due on the date indicated. All students are expected to complete any and all assignments given. The instructor reserves the right to modify assignments as necessary. You will not receive credit for late assignments (homework, projects, readings, and others). However, the instructor will accept and correct these assignments, in order to provide you with feedback that will be beneficial in the learning process. **NO EXCEPTIONS.**

**Homework:** Homework will be distributed throughout the semester; however it will not be collected nor graded. It is highly encouraged for students to work through the homework assigned in order to learn and practice critical concepts in preparation for quizzes and exams. Do not procrastinate, work through homework as we cover the concepts in class. Waiting to attempt the homework just before a quiz or exam will allow no time for questions or problems.

**Class Attendance Policies:** Attendance is necessary for all class lectures unless you are ill or officially excused by the instructor as a result of participation in a university function. In the case of unavoidable absences, you are responsible for making up the work done in class. It is not

the instructor's responsibility to provide the student with that information outside of class. It is your responsibility to obtain any missed information or handouts given in class from a classmate. No companions, friends, family, or pets are permitted in class.

**Methods of Communicating:** You can submit all written work to the instructor in class in hard copy. You can also ask questions and ask for clarification by e-mail, in class, or by visiting the instructor by appointment at his/her office. Students are not permitted to discuss grades with the instructor via e-mail, only in-person.

**Method of Instruction:** The course may consist of a combination of lectures, discussion, guest speakers, site visits, videos, presentations by industry professionals, labs, and teamwork.

**Readings, Preparation and Participation:** The reading assignments, problems cases and discussion forums are an integral element of the course. Students are expected to complete readings and other assigned work prior to each class, in order to fully participate in the discussion. Learning is approached as a participatory process, which benefits from student/teacher and student/student interaction. The lectures may not explicitly follow the assigned book reading, but are designed to bring together diverse information from various sources.

**Field Trips:** Field trips visits are mandatory and are meant as an enrichment experience. Field trip locations will be announced prior to the scheduled visit. It is the student's responsibility to wear hard-toed shoes, hard hats, protective eye cover (on certain sites) and long trousers/slacks during the field trip. Students are required to fill out and sign the Georgia Tech's "Release and Waiver of Liability" form, as well as any other forms required by the company whose site is being visited.

**Laptop/Handheld Computer Use:** Laptop/handheld computers **MAY NOT** be used in class. Keep them turned off and located off of your desk.

**Cell Phones:** All communication devices must be turned off in the classroom. The use of cell phones, beepers, or other communication devices is disruptive, and is therefore prohibited during class. No personal listening devices or personal transportation devices are permitted.

**Make-up Exams:** There will be no make-up exams under any circumstances, except medical reasons. Provide your instructor with a letter from your medical doctor to schedule a make-up exam.

**Food and Drink in the Classroom:** Students are not allowed to bring food or drinks into classroom unless approved by the instructor.

**Class Discussions:** Your active and productive participation in class discussions is encouraged. Various viewpoints and opinions are encouraged and welcome. Questioning the ideas of others, including the instructor, is similarly welcome. However, the instructor will exercise his/her responsibility to manage the discussions so that ideas and argument can proceed in an orderly fashion. If your conduct during class discussions seriously disrupts the atmosphere of mutual respect, you will not be permitted to participate further.

**Instructor's Absence or Tardiness:** If the instructor is late in arriving to class, you must wait a full 20 minutes after the start of class before you may leave without being counted absent, or you must follow any written instructions the instructor may give you about an anticipated absence or tardiness.

**Plagiarism:** Students are expected to do their own work in this course. To use another writer's or speaker's ideas without giving proper credit by means of standard documentation is plagiarism. All course papers, notes, homework, and projects submitted to the instructor are subject to textual similarity review for the detection of plagiarism. All submitted papers will be included as source documents in the reference database for the purpose of detecting plagiarism of such papers. The instructor will follow the Institute's policy for plagiarism.

**Academic Misconduct/Honor Code:** Students in this course are responsible for behaving in accordance with the Georgia Tech Academic Honor Code. The Institute Student Honor Code is printed in the Georgia Tech General Catalog, as well as available on the Web at: [www.honor.gatech.edu](http://www.honor.gatech.edu).

**Disabilities:** Any student that may need an accommodation for any sort of disability should contact the ADAPTS Office: Assistant Dean/Coordinator for Students with Disabilities, Smithgall Students Services Building, Suite 221. The phone number is (404) 894-2564.

**Computer Specifications:** For information on computer specifications to meet Georgia Tech standards, visit [www.coa.gatech.edu/computing/comp\\_specs.htm](http://www.coa.gatech.edu/computing/comp_specs.htm). Internet access is required for this course, as is an e-mail account for communication with the instructor.

**Policy Changes:** Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

#### **Supplemental Policies:**

The following supplemental policies (if any) will supersede the previous policies listed above, at the discretion of the instructor.

Class	Date	Topic or Subject	Text/Topic/Reading	Homework	Other
1	8/24	Course Policy			
2	8/26	Review of Physics 2211	Chapter 2		
3	8/31	Statics	Chapter 2		
4	9/2	Statics	Chapter 2		
5	9/7	Analysis of Determinate Structures	Chapter 3		
6	9/9	Analysis of Determinate Structures	Chapter 3		Quiz #1
7	9/14	Analysis of Determinate Structures	Chapter 3		
8	9/16	Load Tracing	Chapter 4		
9	9/21	Load Tracing	Chapter 4		
10	9/23	Load Tracing	Chapter 4		
11	9/28	Review for Exam I			
12	9/30	Exam I	Chapters 2, 3, 4		Exam #1
13	10/5	Cross-sectional properties	Chapter 6		
14	10/7	Cross-sectional properties	Chapter 6		
15	10/12	Moment and shear in members	Chapter 7		
16	10/14	Moment and shear in members	Chapter 7		Quiz #2
	10/15	DROP DAY			
	10/19	FALL RECESS – NO CLASS			
17	10/21	Moment and shear in members	Chapter 7		
18	10/26	Bending and shear stress in beams	Chapter 8		
19	10/28	Bending and shear stress in beams	Chapter 8		
20	11/2	Bending and shear stress in beams	Chapter 8		
21	11/4	Review for Exam II			
22	11/9	Exam II	Chapters 6, 7, 8		Exam #2
23	11/11	Columns	Chapter 9		
24	11/16	Columns	Chapter 9		
25	11/18	Strength of materials	Chapter 5		
26	11/23	Strength of materials	Chapter 5		
	11/25	THANKSGIVING – NO CLASS			
27	11/30	Structural Connections	Chapter 10		
28	12/2	Quiz III	Chapter 5, 9, 10		Quiz #3
29	12/7	Review for Final			
30	12/9	Review for Final			
31	12/16	FINAL EXAM: 2:50 – 5:40 PM	Comprehensive		Final Exam