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Graduate Advanced Structures
ARC 6505 / Fall 2016

Weeks 1 - 7 Prof. Kuenstle Thursday 9:00 – 1:00 Citylab Orlando
Weeks 8 - 16 Prof. Nawari Friday 9:00 – 1:00 Citylab Orlando

Course Description

Graduate Advanced Structures is the second structures course in a two-course sequence. In this course students investigate basic building structural systems in wood, steel and concrete. The anticipated behavior of each type system is studied and analyses are performed on the primary structural elements of each system type – beams, columns, slabs, connections, and foundations, etc.

4 Credit hours. Prerequisite: ARC 3503 or other equivalent structures course.

Class Objectives

- to re-familiarize students with the basic principles of statics, strength of materials, structural loads, load distribution, and load transfer.
- to develop a conceptual understanding of the nature and behavior of typical structural systems in wood, steel, and concrete.
- to be able to select, analyze, and design the structural elements in simple building system for preliminary design purposes.
- to investigate how structural systems in these materials can be used as part of an architectural design strategy.

Class Organization

The course presentation is based on lectures, in-class problem sessions, discussions, and projects.

Course Evaluation and Grading

Project	50%
Exams/Quizzes	40%
Participation	10%

This is a 4 credit hour graduate level required course with a mandatory attendance policy. A single comprehensive case study project focusing on a selected structural system and its anticipated behavior under specified loading conditions will be due around the midterm. The project will be

developed in groups of 2 to 3 students using drawings and models. Homework problems will be assigned but not collected. Solutions will be discussed in class. There are 3 exams this semester; one for each of the primary material systems, wood, steel and concrete. Additionally, basic questions concerning concepts based on the fundamental principles of statics and strength of materials will be emphasized throughout the term and on each exam.

Required Textbook

Building Structures: Fundamentals of Crossover Design, Nawari O. Nawari and M. Kuenstle, University Readers Inc., 2011.

General Structures, David Berg & Robert Marks, Kaplan Publishing, 2009 (or latest edition)
discount code for University of Florida (20%) AUFSA

Books On Reserve

1. *Statics and Strength of Materials for Architecture and Building Construction*, Onouye & Kane
2. *Elementary Structures for Architects and Builders*, R.E. Shaeffer
3. *Simplified Engineering for Architects and Builder*, James Ambrose
4. *Structural Principles*, Irving Engel
5. *Structures*, Daniel Schodek
6. *Simplified Design of Steel Structures*, James Ambrose
7. *Applied Structural Steel Design*, Spiegel & Limbrunner
8. *Reinforced Concrete: Preliminary Design for Architects and Builders*, R.E. Shaeffer
9. *Simplified Design of Concrete Structures*, James Ambrose
10. *Reinforced Concrete Design*, Leonard Spiegel, George F. Limbrunner

Proposed Course Outline

Week 1	Projects Research / Lateral Load Resisting Systems
Weeks 2-6	Review & Wood Systems
Weeks 7-12	Trusses & Steel Systems
Weeks 13-17	Reinforced Concrete Systems

Engineering Software

MDSolids

Other Required Materials

Vulcraft Steel Joist and Steel Deck Manuals

Additional materials, handouts, learning software, etc. will be made available over the class website.

Policy

Grading Scale

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Numeric Grade	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	0-59
Quality Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0.0

UF Grading Policy

Information on UF's grading policy can be found at the following location:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Students with Special Needs

Students with special physical needs and requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. All attempts to provide an equal learning environment for all will be made.

College of Design, Construction and Planning Spray Painting Policy

Spray painting, or the use of any other sort of aerosol spray, is not allowed in the Architecture Building, Rinker Hall and in Fine Arts C, except within the spray booth found in Room 211 of Fine Arts C. Students found in violation of this policy will be referred to the Dean of Students for disciplinary action.