ARCH 4303 / 5303 STRUCTURAL PRINCIPLES
FALL 2016

INSTRUCTOR: David J. Thaddeus, AIA, NCARB, Professor
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Office Hours: By Appointment

SCHEDULE: This course meets in Room 290 on Mondays and Wednesdays from 11:00 AM-12:15 PM

DESCRIPTION: “Materials should be employed in a manner consonant with the formulation of a structure. Their proper use contributes to the clarity of the structural expression; their misuse, on the other hand, diminishes the effectiveness of the design”. Eugene Emmanuel Viollet Le Duc

A tripod represents stability, which in structural analysis is determined through the appropriate manipulation of the elements of the tripod: load, material and geometry. The artful manipulation of these parameters is of primary concern in architecture. Harmony in architectural design will not be realized unless accompanied by an inner harmony that comes only with an understanding of the structure of form. Nature is a witness to this harmony.

This course is a general introduction to statics and strength of materials. It is devoted to enhancing your intuitive understanding of the fundamental concepts that underlie structural design of buildings for gravity dead loads and live loads and loads such as rain and snow loads. The course also introduces lateral loads including wind loads, seismic loads and active lateral soil pressures.

PROCEDURE: Several fundamental topics and structural principles will be addressed in a series of lectures, presentations and projects. The course involves a fair amount of numeric calculations to arrive at practical conclusions. In essence, understanding and distilling the general structural logic of any calculation is what expected of the students enrolled in this course. Graduate students will have additional visits and documentation requirements of their projects.

NAAB CRITERIA: The School of Architecture at UNC Charlotte maintains accredited status through the National Architectural Accrediting Board (NAAB), which reviews the curriculum, facility, faculty, and program resources annually, and conducts an intensive site visit every six years. As part of this review, the NAAB will review student work produced in courses throughout the curriculum. This course will include content related to the following NAAB Student Performance Criteria:

B.5- Structural Systems-Ability-Ability to demonstrate the basic principles of structural systems and their ability to withstand gravitational, seismic, and lateral forces, as well as the selection and application of the appropriate structural system.
EVALUATION: The following values for student evaluation and progress are preliminary and may change as the course progresses. Late submissions will not be accepted.

- 2 Exams x 20% Each = 40%
- Final Exam = 20%
- HW = 5%
- Pop Quizzes = 10%
- Project(s) - Adopt A Site = 20%
  - Adopt An Engineer = 5%

Graduate students will have an additional assignment associated with the Adopt A Site Project.

TEXTBOOKS: Required Textbooks:


Recommended Textbooks:


ATTENDANCE: You are allowed three (3) absences. For any class you are absent, you will receive a grade of zero if a quiz, test, exam, or other graded activity is given on that day. Additional absences (4 or more) will result in a letter grade reduction for each additional class missed.

You are NOT allowed to use your laptop during class for any reason. In addition, you are not allowed to use your cell phone during quizzes and exams.