New York University Polytechnic School of Engineering
Civil and Urban Engineering
Course Outline CE-UY 4193 – Timber and Masonry Structures
Spring 2018
Professor Patricia Rodriguez, PE
Mondays and Wednesdays 3:00-4:20pm; 6 MetroTech Center, RH202

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Office hours: by appointment

Course Pre-requisite(s):  CE-UY 3133 or equivalent

Course Description:  The course covers: Properties and classification of structural lumber; design of timber connectors; design and construction of residential and industrial timber buildings; beams, frames, columns and trusses of sawn lumber and glued laminated construction; manufacture and properties of concrete masonry units; properties of mortar and grout; and design and construction of load-bearing, reinforced and unreinforced masonry structural elements.

Textbooks:  Design of Wood Structures, ASD/LRFD, Donald E. Breyer, McGraw Hill
Design of Reinforced Masonry Structures, Narendra Taly, McGraw Hill, 2010


Grade Basis:  Attendance  5%
Quizzes  10%
Term Project  25%
Midterm Exam  30%
Final Exam  30%

Course Objectives
1-  To establish an understanding of the behavior of the steel and reinforced concrete structures.
2-  To provide students with a clear and thorough presentation of the methods and regulations used in current design practice
3-  Students should develop the skill to combine analysis and design processes.
4-  Students should develop the skill to design efficient structures, safely and economically.
Part I - Timber Structures

1. Introduction
   i. LRFD, ASD and Codes
   ii. Design Loads and Load Factors
   iii. Material Properties

2. Beams and Joists
   i. Bending
   ii. Shear
   iii. Bearing

3. Columns, Walls and Beam-Columns
   i. Solid and Built-up Columns
   ii. Bearing Walls
   iii. Combined Axial and Bending

4. Structural Panels
   i. Roof Sheathing
   ii. Floor Sheathing
   iii. Wall Sheathing

5. Connections
   i. Nails
   ii. Bolts
   iii. Joist hangers

Part II - Masonry Structures

6. Introduction
   i. Strength Design, ASD and Codes
   ii. Material Properties

7. Beams
   i. Flexural design
   ii. Shear
   iii. Lintels

8. Columns and Piers
   i. Axial loads only
   ii. Combined axial and bending

9. Bearing Walls
   i. Gravity and transverse loads
   ii. Out-of-plane loads

10. Anchorage
    i. Anchor bolts
    ii. Anchorage in walls
Specific Requirements:
- Late term projects will not be accepted.
- More than 25% absences will lead to a failing grade “F”.

**ABET Competencies:**

- e. Practice problems are not collected and graded. However, students are expected to attempt these problems on their own. Practice problems will resemble review and exam questions.
- i. Recognition of the need for, and an ability to engage in life-long learning.
- k. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

**Moses Center Statement of Disability**

If you are student with a disability who is requesting accommodations, please contact New York University’s Moses Center for Students with Disabilities at 212-998-4980 or mosescsd@nyu.edu. You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at www.nyu.edu/csd. The Moses Center is located at 726 Broadway on the 2nd floor.

**NYU School of Engineering Policies and Procedures on Academic Misconduct**

A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School’s rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School’s Policy on Academic Misconduct.

B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:

1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person’s
work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.

2. Fabrication: including but not limited to, falsifying experimental data and/or citations.

3. Plagiarism: intentionally or knowingly representing the words or ideas of another as one’s own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.

4. Unauthorized collaboration: working together on work that was meant to be done individually.

5. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.

6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.