New York University School of Engineering  
Department of Civil and Urban Engineering  

Syllabus  
CE-UY 4153 LCLB Structural Design Project  
Spring 2017  

Monday/Wednesday 08:00-9:50 pm (RM678)  

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Course Pre-requisites  
CE 3173 Structural Design  

Course Description  
This course covers modeling, analysis and design of a reinforced concrete building structure:  
– Study of building performance on macro and element levels (from preliminary to final design):  
  – Global building behavior.  
  – Individual members comprising gravity and lateral force resisting systems.  
– Introduction and application of industry standard BIM, analysis and design software packages.  
– Introduction, development and application of custom design tools facilitating design process.  
– Preparation of structural drawings and reports.  

Course Objectives  
As a result of taking this course students will:  
– Learn methods and regulations utilized in design practice bridging the gap between theory and practice.  
– Develop an ability to solve unique design problems.  
– Design structures safely and efficiently.  
– Use computer aided software along with manual verification techniques for analysis and design.  

Course Structure  
Instructor leads the course by providing students with required for the project development information, techniques and methods. Students are given the project assignment (analysis and design of a concrete building structure) in the beginning of the class which they will develop in groups through the length of the course. There will be periodical interim submissions showing design progress and final submission at the end of the course (analysis and design report, structural drawings).  

ABET Competencies  
– An ability to design a system, component or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.  
– An ability to communicate effectively.  
– An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.  

Textbook and References  
4. Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary on Building Code Requirements for structural Concrete (ACI 318R-14), American Concrete Institute, 2014.
5. Guide to Simplified Design for Reinforced Concrete Buildings (ACI 314R-16), American Concrete Institute, 2016.

Course Requirements

Grading
Grading of the course will be based on the following:
– Structural design project (group) – 55%;
– Individual project assignments within design team – 15%;
– Peer review of the project developed by other group – 10%;
– Midterm test – 10%
– Quizzes – 5%
– Class attendance – 5%.

Interim and Final Submissions
During the course of the project there will be 4 submissions showing design progress:
– 25% (interim submission);
– 50% (interim submission);
– 75% (interim submission);
– 95% (interim submission for peer review);
– 100% (final submission).

Quality Assurance and Quality Control (QA/QC)
According to the industry standard practice QA/QC procedures will be implemented on the project for each group (each submission):
– Internal within each group (each submission);
– External peer review by other group (after 95% submission, comments to be included in 100% submission).

Project Presentation
After final submission (100%) each group will present their project to the instructor.