Fall 2019

CMT 332-101: Structural Systems for Construction Managers

Paul McCall

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COURSE NUMBER     CMT 332
COURSE NAME       Structural Systems for Construction Managers
COURSE STRUCTURE  (3-0-0)   (lecture hr/wk - lab hr/wk – course credits)
COURSE DESCRIPTION Study of the types and behavior of building structural systems using qualitative
analysis techniques. Systems to be covered will include those involving structural
steel, reinforced concrete, wood and timber, and plain and reinforced masonry. The
effect of wind and seismic events on these systems is reviewed.

PREREQUISITE(S)   None
COREQUISITE(S)    None
REQUIRED, ELECTIVE OR SELECTED ELECTIVE Required
REQUIRED MATERIALS Statics and Strengths of Materials for Architecture and Building Construction
                     Barry Onouye and Kevin Kane – Fourth Edition

COMPUTER USAGE     Internet

COURSE OUTCOMES (CO) Student Learning Outcomes:

Introduction - Students should be able to understand the process of structural
design and the loads and functional requirements associated with the design
process.
Statics - Students will understand the principles of statics.
Analysis of Structural Systems - Students will be able to solve an array of
structural frameworks.
Load Tracing - Students will be able to understand the interaction of one
member with other members and the load paths that develop.
Strength of Materials - Student will have an understanding of the concepts of
stress and strain including material properties.

Cross-Sectional Properties of Structural Members - Students will have a basic
working knowledge of types of commonly used beams and columns.
Shear and Bending in Simple Beams - Students will understand the details of
elastic theory and allowable stress.
Shear and Bending in Beams - Students will understand and use beam and
column design equations.
Column Analysis and Design - The student will understand the design process
for columns.
Structural Connections - The student will become familiar with bolted and
welded connections.
Structure, Construction and Architecture – The student will understand the
different facets of the construction process through case study and the need to
work as a team to complete the project on-time and on-budget.

CLASS TOPICS     Structural Systems

STUDENT OUTCOMES The Course Learning Outcomes support the achievement of the following
CET Student Outcomes and TAC of ABET Criterion 9 requirements:

Student Outcome A - an ability to select and apply the knowledge, techniques,
skills, and modern tools of their disciplines to broadly-defined engineering
technology activities

**Course Learning Outcome** – Apply the knowledge, techniques, skills, and modern tools to design structural systems

**Student Outcome B** - An ability to apply current construction knowledge, adapt emerging applications of mathematics, science, engineering and technology.

**Course Learning Outcome** - apply current construction knowledge into applications of mathematics, science, engineering and technology.

**Student Outcome E,G**: E - An ability to function effectively as a member or leader of a technical team; G - An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;

**Course Learning Outcome** – Ability to function in a team based atmosphere and communicate effectively in a technical environment as it pertains to structural systems.

**Student Outcome F** - an ability to identify, analyze, and solve broadly-defined engineering technology problems

**Course Learning Outcome** – Ability to analyze technical problems associated with certain structural systems and identify solutions.

**Student Outcome H** - An understanding of the need for and ability to engage in self-directed continuing professional development;

**Course Learning Outcome** – Understanding the importance of keeping abreast of new structural systems and technologies.

**Student Outcome P** – Applying basic technical concepts to the solution of construction problems involving structural systems.

**Course Learning Outcome** – Ability to use technical concepts to solve issues as they relate to structural systems.

**ACADEMIC INTEGRITY**

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students’ permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on the honor code, go to [http://www.njit.edu/academics/honorcode.php](http://www.njit.edu/academics/honorcode.php)

**MODIFICATION TO COURSE**

The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline.

**PREPARED BY**

Paul McCall

**COURSE COORDINATED BY**

Paul McCall
CLASS HOURS
Thursday 6:00 PM – 8:50 PM FMH 405

OFFICE HOURS
Monday 5:30 PM - 6:00 PM FMH 405

Or by appointment: (908) 541-5018 or plm3@njit.edu (best method to reach me)

COURSE OUTLINE

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GRADING POLICY

Grading: The final grade in this course will be determined as follows:

- HW 20%
- Attendance 10%
- Midterm Exams: 30%
- Final Exam: 40%

A 90-100 C 70-74
B+ 85-89 D 50-69
B 80-84 F 0-49
C+ 75-79

Note: Grading Policy may be modified by Instructor for each Section in the Course)
Note: This course needs to be passed with a grade of C or better. Cannot pass course if you having failing grades on midterm and final exam

**STUDENT BEHAVIOR**

- No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories.
- Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- No headphones can be worn in class.
- Unless the professor allows the use during lecture, laptops should be closed during lecture.
- Class time should be participative. You should try to be part of a discussion.

**COURSE POLICIES**

- There will be No make-up EXAMS during the semester. In the event the Final Exam is not taken, under rare circumstances where the student has a legitimate reason for missing the final exam, a makeup exam will be administered. In any case the student must notify the Instructor that the exam will be missed and present written verifiable proof of the reason for missing the exam, e.g., a doctor’s note, police report, court notice, etc., clearly stating the date AND time of the mitigating problem.

**COURSE EVALUATIONS**

- Course evaluations and program surveys are important components of the educational process. Students in this course will complete course evaluation forms distributed during the last day of the course. Evaluation is anonymous.

**STATEMENT ON ACCOMMODATIONS**

- Reasonable accommodations are made on an individualized basis. It is the responsibility of persons with disabilities, however, to seek available assistance and make their needs known. The University has designated the Disability Resource Center as the campus coordinating office for the provision and delivery of services and reasonable accommodations that ensure the University's programs, services, and activities are accessible to students with disabilities. The Disability Resource Center is available to assist any student who has a qualified and documented disability. Please contact the Disability Resource Center at 480-965-1234 (Voice) 480-965-9000 (TTY) for additional information.

**HOMEWORK - IMPORTANT**

Homework is due the week following the date they are assigned (see syllabus), and can be emailed. Homework will be graded and returned. You can scan the homework as a pdf, save the homework as a .doc, or even take a picture of the homework as a .jpg file. Homework will not count if they are turned in late. Homework must be handed in individually.