CMT 332 – Structural Systems for Construction Managers

COURSE NUMBER	CMT 332
COURSE DESCRIPTION	Structural Systems for Construction Management
COURSE STRUCTURE	(3-0-0) (lecture hr/wk - lab hr/wk – course credits)
COURSE DESCRIPTION	Prerequisites: MATH 238. 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)	MATH 238. General Calculus II. 3 credits, 3 contact hours (3;0;0).
COREQUISITE(S)	None
REQUIRED MATERIALS	Statics and Strengths of Materials for Architecture and Building Construction Barry Onouye and Kevin Kane – Fourth Edition (Latest Edition)
SUPPLEMENTARY MATERIAL	**Software:** 1.MDSOLIDS from website - http://www. mdsolids.com 2.See instructor for other related software
COURSE OBJECTIVES	By the end of the course students should be able to: 1. Selecting appropriate construction materials and practices 2. Applying basic technical concepts to the solution of construction problems involving structures 3. Performing standard analysis and design in at least one recognized technical specialty appropriate to the goals of the program
CLASS TOPICS	Structural Analysis and Strength of Materials Review, Design of various loads, Design of various wood components in a system, Design of various masonry components in a system
OUTCOMES	The Course Learning Outcomes support the achievement of the following CET Program Outcomes and TAC of ABET Criterion 3 requirements (2023-2024) 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.
Structural Steel - The student will become familiar with Structural Steel 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.

GRADING POLICY

Note: Grading Policy may be modified by Instructor for each Section in the Course)

Homework and Quizzes	30 %
Tests	35 %
Final Exam	35 %

Note: Cannot pass course if you having failing grades on tests and final exam

Makeup examinations will not be given. Therefore, if any student has a valid reason for missing an exam, they should discuss with the instructor an alternate method of weighing the final grade.

The student is responsible for those materials covered in class and any materials assigned as readings as noted by instructor. A student who misses a class is still responsible for submitting materials in on time or they can give adequate notice of any late submittals to the professor before the due date.

All exams are cumulative unless otherwise noted by the instructor. All exams are open book and open notes.

The final letter grade will be determined by the total number of points received during the course. Any variations to any of the above requirements are at sole discretion of the instructor.

HOMEWORKS:

All homeworks are due one week after it has been assigned. No homework will be accepted one week after its due date or after it has been reviewed in class. All homeworks will be graded on the basis of the student attempt to understand the concept presented in the text or class. Projects must follow the outline or format as directed in class. ABET course guidelines are in effect. Copy all of your work before submitting!!

ATTENDANCE:

The student is responsible for those materials covered in class and any materials assigned as readings as noted by instructor. A student who misses a class is still responsible for submitting materials in on time or they can give adequate notice of any late submittals to the professor before the due date.

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

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.
- During laboratory, if you are finished earlier, you must show the professor your work before you leave class
- Class time should be participative. You should try to be part of a discussion

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 Dr. D. Washington

PROGRAM COORDINATOR Prof. John Wiggins

COURSE OUTLINE

Week	Date	Textbook	Assignment	Topics
1.	**4-Sep**	Notes	Homework assignment in Canvas for week 1	Course Outline and Overview
2.	11-Sep			Statics
3.	18-Sep		Homework assignment in Canvas for week 3	
4.	25-Sep	Text		Analysis of Structural Systems
5.	2-Oct			**Test #1**
6.	9-Oct	Text	Homework assignment in Canvas for week 6	Load Tracing
7.	16-Oct			**Strength of Materials**
8.	23-Oct	Text	Optional Homework assignment in Canvas for week 8	**Test #2/SOM**
9.	30-Oct			Cross Sectional Properties
10.	6-Nov			Shear and Bending in Simple Beams
11.	13-Nov		Optional Homework assignment in Canvas for week 10	Stresses in Beams
12.	20-Nov	Nov. 21st Thursday Classes Meet	Friday Classes Meet	**Test#3**/Reinforced Concrete Analysis and Design
13.	27-Nov		-	No Class
	4-Dec	Text	-	Structural Steel and Connections
14.	11-Dec		Last Day of Classes, Dec. 13th	
15.	18-Dec		**Week of Finals**	

CLASS HOURS

WED 6:00 PM – 9:00 PM FMH 108

Office Hours

WED FENSTER 204 (By Appointment) 5:00 PM – 6:00 PM

home page: http://web.njit.edu/~washd/ **(973) 642-7915** or **washd@njit.edu**