

Spring 1-1-2020

CMT 436-102: Temporary Structures for Construction Management

Paul Toscarelli

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CMT 436 102 – TEMPORARY STRUCTURES FOR CONSTRUCTION MANAGEMENT

COURSE NUMBER	CMT 436
COURSE DESCRIPTION	TEMPORARY STRUCTURES FOR CONSTRUCTION MANAGEMENT
COURSE STRUCTURE	(3-0-3) (lecture hr/wk - lab hr/wk – course credits)
COURSE DESCRIPTION	This course introduces the student to the study and application of the types of various temporary systems and structures used in field construction activities, including concrete forming and false work, sheeting and shoring for excavations, scaffolding, barriers, barricades, ladders, temporary bridges and ramps. Other topics such as traffic control, soil erosion and sediment control, and dewatering will also be covered. Construction safety with respect to these methods will be discussed.
PREREQUISITE(S)	N/A
COREQUISITE(S)	CMT332
REQUIRED MATERIALS	<ol style="list-style-type: none">1. <u>Temporary Structures For Construction Management - eBook</u> ISBN: 9781309048351 Available at: www.mcgrawhillcreate.com/shop2. <u>Manual of Uniform Traffic Control Devices, Chapter 6</u> Available at: http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm
COMPUTER USAGE	Students are expected to submit reports utilizing Microsoft Office tools, such as Word, Excel, Project, PowerPoint, or equivalent.
COURSE OBJECTIVES	By the end of the course, students should be able to: <ol style="list-style-type: none">1. Implement traffic control plans, in accordance to industry standards (as per the Manual of Uniform Traffic Control Devices)2. Be familiar with temporary road and bridge installations for construction projects3. Create a soil erosion and sediment control plan for a construction site4. Have thorough understanding of codes & standards pertaining to scaffolding, stairways and ladders, used in construction5. Be familiar with techniques involving the temporary installation of retaining walls, sheet piling, and cofferdams6. Be familiar with temporary structures and systems used in subsurface excavation work7. Have thorough understanding of the use of formwork for concrete structures, including the basics of formwork layout8. Gain knowledge of temporary guying, and bracing of steel structures9. Present orally technical information in a professional and concise manner10. Effectively interact with other team members (students) to assemble and present deliverables for group projects11. To utilize Computer Aided Drafting (CAD) as part of project submittals throughout the semester to accurately and professionally depict layouts and designs

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CLASS TOPICS Traffic control and roadway barriers, temporary roads and bridges, soil erosion and sediment control, scaffolding, stairways and ladders, retaining walls, sheet piling, and cofferdams, trenching and shoring, tunneling, dewatering, ground freezing, concrete formwork, steel guying and bracing.

OUTCOMES The Course Learning Outcomes support the achievement of the following CMT Program Outcomes and TAC of ABET Criterion 9 requirements

Outcome b - an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines

Performance Indicator – Demonstrate the proper use of software to solve technical problems

Performance Indicator – Demonstrate the ability to write an acceptable discussion of results and conclusion

Outcome e - an ability to function effectively on teams

Performance Indicator - Identify team roles on reports and presentations

Outcome g - an ability to communicate effectively

Performance Indicator - The ability to write a report covering key aspects

GRADING POLICY	Class Participation & Attendance	10%
	Homework	10 %
Note: Grading Policy may be modified by Instructor for each Section in the Course)	Group Projects	20 %
	Mid-Term	30 %
	Final	30 %
	Total:	100%

NOTE: Students must take the Mid-Term and Final Examinations in order to receive credit and pass the course.

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: <https://www5.njit.edu/doss/code-student-conduct-article-11-university-policy-academic-integrity/>

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.
- 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 Paul Toscarelli
COURSE COORDINATED BY John Wiggins

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Week	Date	Reading	Assignment	Topics
1.	1/23/2020	Chap 2, 16	HW #1	Introduction & Course Overview
2.	1/30/2020	SCM: MUTCD	HW #2 Group Assign. #1	Traffic Control & Barriers
3.	2/6/2020	Chap 3, 4, 5, 17 SCM	HW #3	Temporary Roadways & Bridges
4.	2/13/2020	SCM: SESC Chap 7	Group Assign. #2	Soil Erosion & Sediment Control
5.	2/20/2020	Chap 6 SCM	HW #4	Scaffolding, Stairways, & Ladders
6.	2/27/2020	Chap 7, 8 SCM	HW #5	Retaining Walls, Sheet Piling, Cofferdams
7.	3/5/2020	All	-	Review for Mid-Term Examination
8.	3/12/2020	All	-	<i>MID-TERM EXAMINATION</i>
9.	3/19/2020	-	-	NO CLASS (SPRING BREAK)
10.	3/26/2020	Chap 7 SCM	HW #6 Group Assign. #3	Subsurface: Trenching & Shoring
11.	4/2/2020	Chap 9, 10, 11, 12	HW #7	Subsurface: Tunneling, De-watering, Ground Freezing
12.	4/9/2020	Chap 13, 18, 19 SCM	HW #8 Group Assign. #4	Formwork I
13.	4/16/2020	SCM	HW #9	Formwork II
14.	4/23/2020	SCM	HW #10	Formwork III
15.	4/30/2020	Chap 14, 15, 21, 22, 23	-	Steel Review for Final Examination
16.	5/7/2020	All	-	NO CLASS (READING DAY)
17.	5/14/2020	All	-	<i>FINAL EXAMINATION</i>

SCM = Supplemental Course Material

CMT 436 102 – TEMPORARY STRUCTURES FOR CONSTRUCTION MANAGEMENT

CLASS HOURS

Thursday - Lecture 6:00 PM – 8:50 PM Central King Building (CKB) Rm. 223

Office Hours

By appointment: (973) 479-4390 or ptoscnjit@gmail.com

HOME PAGE:

[HTTPS://UISNETPR01.NJIT.EDU/COURSESCHEDULE/](https://uisnetpr01.njit.edu/courseschedule/)

COLLABORATIVE TEAM APPROACH TO LEARNING:

Subsequent relevant lecture, certain class activities will involve a collaborative team effort to simulate real-life industry situations and solutions. Teams will be formed with the minimum of four (4) students per team. Responsibilities will be as follows:

- **Project Manager:** Functions as team leader. Actively participates and interacts with the instructor and other Project Managers. Keeps the team focused on the task(s) / assignment at hand, distributes work and responsibilities, resolves disputes, assures that all members participate and understand key concepts of the exercise.
- **Spokesperson:** Actively participates and presents reports and discussion to the rest of the class
- **Recorder:** Keeps a record of the assignment, and what the team has done, as well as prepares a report in consultation with the others. Responsible for submitting group assignments.
- **Engineer/Analyst:** Identifies strategies and methods for problem solving. Identifies what the team is doing to solve the problem at hand. Performs necessary calculations & analysis to achieve desired results.

Rotation of responsibilities will occur every assignment, to assure that each student has an opportunity in each role. Also note that overlap between responsibilities may occur, depending upon the assignment/activity at hand.

HOMEWORK ASSIGNMENTS

Homework is typically due the week following the date which it is assigned. Carefully read the instructions for each homework assignment, as it will specify deliverables and a due date. The homework must be your own work. It will be graded as follows:

“Check plus”	Exceeded expectations
“Check”	Met expectations
“Check minus”	Below expectations
“ 0 “	No credit – must be re-done to receive credit – the student will receive specific instructions as to what was missed to receive no credit, as well as a new due date

Homework Submittal Criteria:

- All homework assignments will be submitted by the due date
- Submittals shall have a cover sheet (example will be provided)
- All assignments shall be assembled in a professional fashion to commensurate an undergraduate student work product
- Assignments shall be legible and presented in printed format from MS Word, Excel, or other appropriate computer software.
- Computational homework shall be done in pencil on graph paper
- **Late submittals shall not be accepted**
- Team assignments require only one (1) hard-copy submittal with a listing of all group participants on the cover sheet