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Spring 2019

CE 414-102: Engineered Construction

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New Jersey Institute of Technology
John A. Reif Department of Civil & Environmental Engineering

Prerequisite: CE 210.

<u>Meeting Date</u>	<u>Topic</u>	<u>Notes</u>
01/24/19	Introduction Business & Legal Aspects	
01/31/19	Earth Pressures & Loads Loads on Temporary Structures	
02/07/19	Forms & Formwork Part I (Walls)	
02/14/19	Forms & Formwork Part II (Walls)	
02/21/19	Forms & Formwork Part III (Slabs) Quiz 1	
02/28/19	<i>Quiz Review</i> Highway & Bridge Engineering	
03/07/19	Formwork Failures <i>Midterm Prep</i>	
03/14/19	Midterm Exam	
03/21/19	SPRING BREAK – NO CLASS	
03/28/19	Sheet Piles and Soldier Piles	
04/04/19	Slopes, Excavations & Walls	
04/11/19	Coffer Dams, Dewatering & Ground Freezing Quiz No. 2	
04/18/19	Underpinning	

04/25/19	Construction Equipment & Safety Scaffolding & Shoring
05/02/19	Temporary Structure Failures <i>Final Review</i>
05/16/19	<i>Final Exam</i>

General Course Information

Statement on Academic Integrity:

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

Grading Policy:

Attendance	10%
Homework Assignments	15%
Quiz #1	10%
Quiz #2	10%
Midterm Exam	25%
Final Exam	30%

Grading Scale:

A	100-90
B+	89-85
B	84-80
C+	79-75
C	74-70
D	69-60
F	Below 60

Office Hours:

By appointment, ideally preceding or following each class.

Attendance Policy:

Students are expected to attend every class, and it is worth 10% of the total grade. Absences on quiz or exam dates are not preferred, but if absolutely necessary, please notify by email to discuss make-up arrangements.

Assignments:

Students are responsible for submitting all assignments (completely and legibly) on the due date. Late assignments will NOT be accepted. Homework received after the due date will NOT receive credit.

All assignments are to be submitted in class on paper, unless otherwise requested, on the due date, or via email to cdr44@njit.edu on or before the beginning of class on the due date. Email is only to be used if you will be absent from class.

Text:

Robert T. Ratay. Temporary Structures in Construction. 3rd Edition. ISBN: 0-07-175307-9 (optional)

Course Objectives Matrix – CE 414 – Engineered Construction

Strategies, Actions and Assignments	ABET Student Outcomes (1-7)	Program Educational Objectives	Assessment Measures
Student Learning Outcome 1: Determine loading on temporary construction structure			
Review loading, live load, dead load, concrete, soil, water	1, 2	1	Homework and exam
Student Learning Outcome 2: Design excavation support			
Determine earth pressure and loading for various soil conditions	1, 2	1	Homework and exam
Design support member sheeting and shoving	1, 2	1	Homework and exam
Student Learning Outcome 3: Discuss and Review construction safety for temporary structure			
Review OSHA 1926	4, 7	1	Class Review and Discussion, Homework, Exam

CEE Mission, Program Educational Objectives and Student Outcomes

The mission of the Department of Civil and Environmental Engineering is:

- to educate a diverse student body to be employed in the engineering profession
- to encourage research and scholarship among our faculty and students
- to promote service to the engineering profession and society

Our program educational objectives are reflected in the achievements of our recent alumni:

1 – Engineering Practice: Alumni will successfully engage in the practice of civil engineering within industry, government, and private practice, working toward sustainable solutions in a wide array of technical specialties including construction, environmental, geotechnical, structural, transportation, and water resources.

2 – Professional Growth: Alumni will advance their skills through professional growth and development activities such as graduate study in engineering, research and development, professional registration and continuing education; some graduates will transition into other professional fields such as business and law through further education.

3 – Service: Alumni will perform service to society and the engineering profession through membership and participation in professional societies, government, educational institutions, civic organizations, charitable giving and other humanitarian endeavors.

Our Student Outcomes are what students are expected to know and be able to do by the time of their graduation:

1. an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Revised: 2/13/18