

Fall 2023

CE 615-851:Infrastructure and Facilities Remediation

Giri Venkiteela

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Venkiteela, Giri, "CE 615-851:Infrastructure and Facilities Remediation" (2023). *Civil and Environmental Engineering Syllabi*. 662.

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JOHN A. REIF, JR. DEPARTMENT OF
CIVIL AND ENVIRONMENTAL
ENGINEERING



CE 615 - Infrastructure and Facilities Remediation Fall 2023

Text: Class lectures and other related resources provided during lectures.

Instructor Information:

Instructor	Email	Office Hours
Giri Venkiteela	Venkitee@njit.edu	Instructor office location - Webex and office hour times- furnished upon request vis e-mail.

Prerequisite: Graduate standing in Civil Engineering and basic knowledge of structures, and material science.

Course Description: Infrastructure materials characteristics and degradation mechanisms. Examine the methodology of inspection, field testing, evaluation and remediation of existing infrastructure and facilities, which include pipelines, tunnels, bridges, roadways, dams and buildings. Typical material distress and failure scenarios will be covered with remediation options through the use of case studies.

Course Outcomes: Upon successful completion of this course, students should specifically be able to do the following:

1. Understand the infrastructure materials characteristics and degradation mechanisms
2. Identify the typical failures in infrastructures and facilities
3. Knowledge on tools and technologies used in infrastructure remediation

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:

Midterm 25%
Final 25%

Research Paper/ Presentation 35% (30%/5%)
Homework 5%
Research article review 10%

Schedule:

Week	Topic	Assignment
Week-1	Introduction, course overview	Research Project topics and team selection
Week-2	Concrete basics	HW#1
Week-3	Concrete testing and repair	RAR#1 (Research article review)
Week-4	Structural Steel	HW#2
Week-5	Timber	RAR#2
Week-6	Masonry	
Week-7	Exam-1	Midterm Exam
Week-8	Infrastructure condition assessment tools	HW#3
Week-9	Dams, Bridges, Tunnels Pavements, Foundations, Pipelines	RAR#3
Week-10	Infrastructure failures during construction/ Infrastructure resiliency	RAR#4
Week-11	Case studies	HW#4
Week-12	Repair specifications	
Week-13	Guest lecture/ Infrastructure resiliency	
Week-14	Research project report/presentations due	Presentation power point slides due
Week-15	Exam-2	Final Exam