



CE 615 - Infrastructure and Facilities Remediation Fall 2024

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

Instructor Information:

Instructor	Email	Office Hours
Giri Venkiteela	Venkitee@njit.edu	Instructor office location - Zoom 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 using 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:

<i>Midterm</i>	<i>30%</i>
<i>Research Paper/ Presentation</i>	<i>30% (25%/5%)</i>
<i>Homework</i>	<i>15%</i>
<i>Research articles review</i>	<i>15%</i>
<i>Class discussions</i>	<i>10%</i>

Schedule:

Week	Topic	Assignments
Week-1	Introduction, course overview	Research paper topics Discussions
Week-2	Concrete basics	HW#1 Discussions
Week-3	Concrete testing and repair	RAR#1 (Research article review) Discussions
Week-4	Structural Steel	HW#2 Discussions
Week-5	Timber and Masonry	HW#3 Discussions
Week-6	Infrastructure condition assessment tools	RAR#2 Discussions
Week-7	Resiliency and sustainability into civil engineering projects	HW#4 Discussions
Week-8	Exam	Midterm Exam
Week-9	Dams, Bridges, Tunnels Pavements, Foundations, Pipelines	RAR#3 Discussions
Week-10	Review of codes and specifications	RAR#4 Discussions
Week-11	Infrastructure failures during construction	HW#5 Discussions
Week-12	Case studies	
Week-13	Research paper week	
Week-14	Research paper presentation slides due	
Week-15	Research paper due	