

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:**

<b>Instructor</b>	<b>Email</b>	<b>Office Hours</b>
<b>Giri Venkiteela</b>	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](mailto:dos@njit.edu)

**Grading:**

Midterm	25%
Final	25%

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

## Schedule:

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