

Summer 2019

# CE 615-850: Infrastructure and Facilities Remediation

Giri Venkateela

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



**CE 615 - Infrastructure and Facilities Remediation (online)**  
**Section: 850**

**Summer 2019**

**Text:**

- Feld, Jacob and Carper, Kenneth, Construction Failure, 2nd Edition, Wiley, Interscience, ISBN: 0-471-57477-5
- Class lectures and other related resources provided during lectures.

**Instructor:** Adjunct Professor Giri Venkateela: email address: [venkitee@njit.edu](mailto:venkitee@njit.edu)  
Office Hours by Appointment Only

**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

**Grading:**

<i>Midterm</i>	25%
<i>Final</i>	25%
<i>Term Paper/ Presentation</i>	40% (30%/10%)
<i>Homework</i>	10%

**Schedule:**

<b>Week</b>	<b>Topic</b>	<b>Activity</b>
May 20 - May 26	Introduction, concrete fundamentals	Project topic selection
May 27 - June 2	Concrete testing and repair	HW#1
June 3 - June 9	Structural Steel	HW#2
June 10 - June 16	Timber and Masonry (midterm review)	HW#3
June 17 - June 23	Exam-1	<b>Midterm</b>
June 24 - June 30	Issues in Dams, Bridges, Tunnels, Pavements, Foundations and Pipelines	HW#4
July 1 - July 7	Infrastructure condition assessment tools	HW#5
July 8 - July 14	Infrastructure failure during construction	HW#6
July 15 - July 21	Case Studies	
July 22 - July 28	Project Presentations	<b>Project presentation slides due</b>
July 29 - August 4	Exam-2	<b>Final</b>
August 5 - August 11	Project report due	<b>Project report due</b>