ENE-662 – 851: Site Remediation
(3 credits)

Lectures: Asynchronous Online Course

Instructor: Maria Coler
Office Hours: Mon: 6-7P
Anytime: By Appointment
Virtual
mcoler@digbrowngogreen.com
201.951.4527

Prerequisite: Undergraduate Civil or Environmental Engineering degree

Required Textbook
Reading materials are provided on the website.

Other Recommended Texts & Reading
“Exposure,” by Robert Bilott; Dramatized in the Movie, Dark Waters.
“A Civil Action,” by Jonathan Harr; Dramatized in the movie, A Civil Action.

Course Description (from NJIT’s course catalog)
This course will provide students with an understanding of how to assess and remediate a brownfield site in the State of New Jersey: from conducting a Preliminary Assessment to constructing a conceptual site model to choosing a remediation strategy. Emerging contaminants and the concepts of resilient and sustainable remediation are explored. In addition, the course contextualizes brownfields in the broader sustainability movement by providing a broad legislative overview and the evolution of public awareness of the ubiquity of brownfield sites.

http://catalog.njit.edu/undergraduate/newark-college-engineering/civil-environmental/civil-engineering-bs/

Course Objectives (General)

By the end of this course, the student will be able to:

Course Topic 1: the legislative and historical contexts in the United States and the State of New Jersey which define a brownfield and regulate the assessment and remediation of brownfield sites. Learn why brownfields are the building blocks of a sustainable future.

Course Topic 2: Learn the fundamentals of constructing a conceptual site model (CSM) in the State of New Jersey: from the Preliminary Assessment, to the site investigation, to the remedial investigation. A CSMs defines the source, nature, extent, fate and transport of contaminants in the environment. You will learn the iterative approach to constructing an effective CSM.

Course Topic 3: Understand the role of the CSM in conducting a feasibility study and selecting the appropriate remediation strategy.

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Course Topic 4: Become familiar with ex-situ and in-situ remediation technologies often employed at contaminated sites.

Course Topic 5: Become familiar with the emerging contaminants affecting the brownfield industry and the various federal and state regulations.

Course Topic 6: Learn about the concept of ecological uplift and how brownfields are serving as the sites of clean energy redevelopment projects.

POLICIES & PROCEDURES

Academic Integrity: It is expected that NJIT’s University Code on Academic Integrity will be followed in all matters related to this course. Refer to NJIT’s Dean of Students website to become familiar with the Code on Academic Integrity and how to avoid Code violations.

https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf

Communication: All communications should be via email, unless otherwise specified.

Lectures/Class: Students must be present for the first lecture

Handouts: Handouts will be made available online.

Homework: Students are expected to read all course materials.

Homework Format: N/A

Late Homework: N/A

Homework Solutions: N/A

Exams: Students can use course materials for certain quizzes and exams.

Calculation of Course Grade: A weighted average grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>N/A</td>
</tr>
<tr>
<td>In-Class Quizzes</td>
<td>15%</td>
</tr>
<tr>
<td>Mid-Term</td>
<td>40%</td>
</tr>
<tr>
<td>Final</td>
<td>45%</td>
</tr>
<tr>
<td>Extra Credit</td>
<td>Up to 20% of Lowest Quiz Score</td>
</tr>
</tbody>
</table>

The minimum requirements for final letter grades are as follows:

A = 90%, B+ = 85%, B = 80%, C+ = 75%, C = 70%, D = 65%, F < 65.0%

Grades will not be curved.

Instructor Commitment: You can expect the Instructor to be courteous, punctual, organized, and prepared for lecture and other class activities; to answer questions clearly; to be available during office hours or to notify you beforehand if office hours are moved; to provide a suitable guest lecturer or pre-recorded lecture when they are traveling or unavailable; and to grade uniformly and consistently.

Students with Documented Disabilities: NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require
accommodations, please contact the Coordinator of Student Disability Services located in the Center for Counseling and Psychological Services, in Campbell Hall, Room 205, (973) 596-3414. Further information on disability services related to the self-identification, documentation and accommodation processes can be found on the webpage at: (http://www.njit.edu/counseling/services/disabilities.php)

**Course Schedule:** Include a table with a preliminary schedule including estimated exam dates, course topics, project dates, etc.

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture</th>
<th>Assignments</th>
<th>Examination</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 10</td>
<td>Week 1</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
<td>Final Exam Desktop: All Topics Covered in Class 5 &amp; 6.</td>
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<tr>
<td>Jan 17</td>
<td>Week 1</td>
<td>Lecture</td>
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<tr>
<td>Jan 24</td>
<td>Week 1</td>
<td>Lecture</td>
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<td>Jan 31</td>
<td>Week 2</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
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<tr>
<td>Feb 7</td>
<td>Week 2</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
<td>Final Exam Desktop: All Topics Covered in Class 5 &amp; 6.</td>
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<tr>
<td>Feb 14</td>
<td>Week 2</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
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<td>Feb 21</td>
<td>Week 2</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
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<tr>
<td>Feb 28</td>
<td>Week 3</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
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<td>Mar 7</td>
<td>Week 3</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
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<tr>
<td>Mar 14</td>
<td>Week 3</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
<td>Final Exam Desktop: All Topics Covered in Class 5 &amp; 6.</td>
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<td>Mar 21</td>
<td>Week 3</td>
<td>Lecture</td>
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<tr>
<td>Mar 28</td>
<td>Week 3</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
<td>Final Exam Desktop: All Topics Covered in Class 5 &amp; 6.</td>
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<tr>
<td>Apr 4</td>
<td>Week 4</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
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<td>Apr 11</td>
<td>Week 4</td>
<td>Lecture</td>
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<td>Apr 18</td>
<td>Week 4</td>
<td>Lecture</td>
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<td>May 2</td>
<td>Week 4</td>
<td>Lecture</td>
<td>Final Exam : 65%</td>
<td>Final Exam Desktop: All Topics Covered in Class 5 &amp; 6.</td>
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</tbody>
</table>

Date last updated: 12.18.2023
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 safe, practical, resilient, 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 technical and interpersonal skills through professional growth and development activities such a 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