

Spring 2022

ENE 662-852: Site Remediation

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COURSE Delivery Mode: Asynchronous, virtual

Course Description

The course examines site remediation from start to finish. Includes regulations, cleanup standards, remedial investigations, feasibility studies, risk assessment, and safety. Examines established and innovative cleanup technologies such as incineration, containment, bioremediation, vapor extraction and ground water recovery.

- Instructor: Michael Hornsby <https://www.linkedin.com/in/mikehornsby/>
- Class Website: <https://njit.instructure.com/courses/21314>
- Canvas Home Page: access via <https://canvas.njit.edu/>
- Class Meeting Time: Asynchronous online during the Spring Semester, January 18 – May 3, 2022
- Class delivery method: Asynchronous and online. No live classes
- E-mail: hornsby@njit.edu Cell Phone: 609-529-6875
- Office Hours: Anytime online, or by appointment.
- 3 credits
- Prerequisite: [EM 631](#). Can be taken concurrently with [EM 631](#). Or by permission.

Text

All materials are available on the website – there is no external textbook

Course Schedule

WEEK OF	TOPIC
1 Jan. 17	Overview of Site Remediation Superfund and Federal Environmental Laws
2 Jan. 24	Site Remediation in New Jersey
3 Jan. 31	Remedial Investigations
4 Feb. 07	Feasibility Studies
5 Feb. 14	Risk Assessment
6 Feb. 21	Site Health & Safety Review for Mid-Term Exam

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- 7 Feb. 28 Mid Term Exam

- 8 Mar. 07 Overview of Remedial Action Technology

- Mar. 14 Spring Break

- 9 Mar. 21 Thermal Desorption, Bioremediation

- 10 Mar. 28 Site Containment

- 11 Apr. 04 Vacuum Extraction

- 12 Apr. 11 Ground Water Remediation

- 13 Apr. 18 Case Histories

- 14 Apr. 25 Energy Development on Landfills and Brownfields

- 15 May 02 Review

Refer to course home page for detailed reading assignments.

Grading Policy

Midterm Exam	30%
Final Exam	30%
Quizzes	30% (2 quizzes @ 15% each)
Class Participation	10%
Extra Credit	0%

Makeup Exam Policy: There will normally be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event that a student has a legitimate reason for missing a quiz or exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the CES Department Office/Instructor that the exam will be missed. If a make-up is allowed, it will be more substantially difficult than the original quiz or exam, to encourage taking the exam on time.

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Grading Scale

A:	100-90
B+:	89-85
B:	84-80
C+:	79-75
C:	74-70
D:	69-60
F:	Below 60

Attendance Policy

Student website activity is monitored. The quality and degree of participation constitutes the class participation score.

Withdrawals

In order to ensure consistency and fairness in application of the NJIT policy on withdrawals, student requests for withdrawals after the deadline will not be permitted unless extenuating circumstances (e.g., major family emergency or substantial medical difficulty) are documented. The course Professors and the Dean of Students are the principal points of contact for students considering withdrawals.

[NJIT University Policy on Academic Integrity:](#)

The NJIT Honor Code will be upheld; any violations will be brought to the immediate attention of the Dean of Students. The Honor Code can be found at (<https://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>).

Assignment Policy

Assignments are posted on the Canvas website. The due date and point value (if applicable) is posted. Points for late assignments may be reduced.

Syllabus Information

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The dates and topics of the syllabus are subject to change; however, students will be consulted with and must agree to any modifications or deviations from the syllabus throughout the course of the semester.

Email Policy

Students may communicate with the instructor via the Canvas messaging system, email (hornsbj@njit.edu) or by cell phone 609-529-6875.

Items Required for this Course

Registration and access to the Site Remediation home page, listed above.

Learning Outcomes

Student will learn:

- What are the laws and regulations applicable to site remediation?
- How is an investigation conducted regarding a contaminated site?
- How to evaluate risks to human health and the environment?
- How are clean options identified, evaluated, and selected?
- What remediation technologies and techniques are used at contaminated sites?
- Who's who when it comes to dealing with the government?

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, 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 as 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.

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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