Fall 2018

CE 647-101: Geotechnical Aspects of Solid Waste

Jay Meegoda

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Text: None, just class notes
Reference Books:
- Landfill Notes by David J. Elton and John J. Bowders, Jr. 2004
- X. Qian, Robert M. Koerner, Donald H. Gray; Geotechnical Aspects of Landfill Design and Construction; Prentice Hall.ISBN: 0-13-012506-7

Instructor: Dr. Jay N. Meegoda, Ph.D, PE, 221 Colton Hall, 973-596-2464,
Fax: 973-596-5790, meegoda@njit.edu, homepage: http://web.njit.edu/~meegoda/Office Hours: M and R 10:30-11:30, W: 4:00 to 6:00 PM and any other time when I am in my office.

Prerequisite: A successfully completed undergraduate course in soil mechanics during past 5 years.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tr>
<td>1-2</td>
<td>Introduction, Sustainable Waste Management</td>
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<tr>
<td>2-3</td>
<td>Regulations, Siting, Permitting and Design Consideration</td>
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<tr>
<td>4</td>
<td>Waste Acceptance, Deposition and Compaction</td>
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In this class we will be designing an actual landfill with filed data
• Homework is due at the beginning of each class meeting.
• You are encouraged to ask questions about the homework in class.
• Students are responsible for chapter and problems.

Term Paper and Presentation:
☐ Submit topic for presentation on 09/26/2018
☐ Submit a list of references and an outline of the presentation on 10/10/2018.
☐ Term Paper must be submitted on 11/28/2018.
☐ Date of presentation will be 12/12/2018.
☐ Outline of the presentation must be distributed to the class before the presentation.

Some suggested student projects/topics for term paper
• Management of Waste
• Siting/Permitting
• Design Considerations
• Liner Design
• Leakage Detection Design
• Slope Stability, Foundation & Waste Settlement
• Landfill Construction
• Landfill Operation
• Seismic stability
• Final Cover
• Erosion control
• Evaluation after construction
• Case Histories
• Landfill Failures
• Landfill Mining
• Landfill Gas Management
• Bioreactor Landfill Design
• Composting

A typical paper might contain (as appropriate):
☐ Introduction to the subject
- History of the subject
- Current solutions to the problem
- Need for further work on the problem
- New ideas for the problem

Grading

- Homework 10%
- Midterm 30%
- Final 30%
- Paper and Presentation 30%

Note: The NJIT Honor Code will be upheld, and that any violations will be brought to the immediate attention of the Dean of Students.
Also, students will be consulted by the instructor for modifications or deviations from the syllabus.