



CEN 431 Environmental Resource Management

Winter 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email:TBA

COURSE OBJECTIVES

This course delves into the intricacies of effectively handling municipal solid waste to promote sustainable and environmentally conscious practices. Participants will explore various aspects of waste management, including the quantities and characteristics of municipal solid waste (MSW), collection and transportation systems, resource recovery methods, solid waste separation processes, energy recovery from MSW, disposal methods, and the environmental impacts associated with landfilling of solid waste.

Upon Completion of this Course, students will be able to:

1. Define and explain the basic concepts and terminology related to solid waste management;
2. Analyze the impact of legislation on waste management practices;
3. Understand the principles and practices of recycling and its role in waste management;
4. Assess the environmental and economic implications of various collection and transportation strategies.

PREREQUISITES

CEN 260 Introduction to Environmental Engineering

GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:



ITEM	POINTS
2 Quizzes	20 Points
3 Projects	30 Points
Midterm	20 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

1. Elena Cristina Rada, *Solid Waste Management*, 1st Edition, Apple Academic Press, 2016.
2. William A. Worrell; P. Aarne Vesilind, *Solid Waste Engineering: A Global Perspective*, 3rd Edition, Cengage Learning, 2017.
3. Asian Development Bank, *Integrated Solid Waste Management for Local Governments*, 1st Edition, Asian Development Bank, 2017.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	<p>Topics:</p> <p>Topic 1: How High Efficiency Selective Collection Affects the Management of Residual MSW</p> <p>Topic 2: Accounting for the Ecological Footprint of Materials in Consumer Goods at the Urban Scale</p> <p>Topic 3: Modeling Municipal Solid Waste Management in Africa</p> <p>Topic 4: Solid Waste Management in Minna, North Central Nigeria</p> <p>Assessments:</p>



	Quiz#1
Module 2	<p>Topics: Topic 5: Management of Municipal Solid Waste in One of the Galapagos Islands Topic 6: Refuse Collection Systems Topic 7: Collection of Recyclable Materials Topic 8: Storing MSW</p> <p>Assessments: Project#1</p>
Module 3	<p>Topics: Topic 9: Transfer Stations Topic 10: Separation Processes Topic 11: Materials Separation Systems Topic 12: Life Cycle Analysis and Management</p> <p>Assessments: Midterm Quiz#2</p>
Module 4	<p>Topics: Topic 13: Flow Control Topic 14: Public or Private Ownership and Operation Topic 15: Contracting for Solid Waste Services Topic 16: Landfill Development</p> <p>Assessments: Project#2</p>
Module 5	<p>Topics: Topic 17: Controlled Landfill sizing and Design Guidelines Topic 18: Landfill Gas Management Topic 19: Litter Management Topic 20: Environmental Monitoring and Management Plans</p> <p>Assessments: Final Exam Project#3</p>

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow



University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.



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DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.