

University Curriculum Development for Decentralized Wastewater Management

Soil and Site Evaluation Suggested Course Materials

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Citation of Materials

The educational materials included in this module should be cited as follows:

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Trotta, P.D., D.L. Lindbo and J.O. Ramsey. 2005. Site and Soil Evaluation - PowerPoint Presentation. *in* (M.A. Gross and N.E. Deal, eds.) University Curriculum Development for Decentralized Wastewater Management. National Decentralized Water Resources Capacity Development Project. University of Arkansas, Fayetteville, AR.

Soil and Soil and Site Evaluation

Suggested Course Materials

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Soil and Site Evaluation Overview

This module will present students with procedures for determining optimal and unacceptable locations for onsite wastewater treatment and dispersal systems. The module will instruct the students on necessary equipment to perform a Soil and Site Evaluation. It will present concepts on preliminary soil and site investigation work as well as field observation techniques. Additionally, it provides basic information on soil characteristics with which engineering students should be familiar.

Module materials include a text and a slide presentation with lecture notes. The text focuses on site evaluation, while the slide presentation includes an introduction to basic soil characteristics for engineering students. If used in its entirety, this module will require 9 to 12 hours of course time. It is highly recommended students take actual field observations; therefore time spent on this module should be split between classroom and actual field work. If additional detail on soils is desired in text or PowerPoint format, the Instructor is directed to the Practitioner Soil and Site Evaluation Module of the Model Decentralized Wastewater Curriculum at this link:
<http://www.onsiteconsortium.org/training/activitiesDetails.cfm?ID=2>

Soil and Soil and Site Evaluation

Agenda

The class agenda is based on a Monday, Wednesday, Friday schedule with 90 minute classes. This schedule is intended as an outline for a possible class agenda.

Week 1 and 2

The PowerPoint is presented in two class periods. This is followed by one to four field observation classes outside.

Week 3

Review and Test on Soil and Soil and Site Evaluation Module - One or two class periods can be used to review and test on presented material.

Soil and Site Evaluation

Module Outline

I. Conducting a Soil and Site Investigation

- A. Overview
- B. Background Investigation
- C. Field Investigation

II. Preliminary Investigation

- A. Key People and Entities
- B. Background Documents
 - 1. Subdivision Requirements
 - 2. Jurisdictional Regulations
 - 3. USGS Maps
 - 4. FEMA
 - 5. Soil Survey Maps
- C. Wastewater Characteristics
 - 1. Source
 - 2. Projected volume

III. Equipment

- A. Recording, Marking and Measuring Equipment
 - 1. Clipboard
 - 2. Forms
 - 3. Field book for describing soil
 - 4. Field book for notes
 - 5. Compass
 - 6. Flagging and stakes
 - 7. Measuring wheel and tape measure
 - 8. String Lines

9. Shovel
10. Camera
11. GPS
12. Soil color book

B. Hand tools

1. Soil knife
2. Rock Hammer
3. Water
4. Acid

C. Devices for Determining Grade

1. Hand Level
2. Clinometer
3. Abney Level
4. Rotating Laser Level
5. Other

IV. Soil and Site Investigation

- A. Features to identify or locate
- B. Soil morphological description

Soil and Site Evaluation

Goals

The goal of this course module is to introduce the engineering student to basic concepts of soil science as they relate to onsite wastewater systems and teach them the methodologies for sighting an onsite wastewater treatment and disposal system.

Soil and Site Evaluation

Learning Objectives

1. Students will know how to collect preliminary information that is often available and useful.
2. Students will know the type of equipment that should be used in the field while performing a site investigation.
3. Students will know what items to look for and to avoid when locating an onsite wastewater treatment and disposal system
4. Students will learn basic concepts of soil description related to onsite wastewater treatment and dispersal.

Soil and Site Evaluation

Prerequisites

Suggested prerequisite for this module are:

- Trigonometry
- Drafting
- Surveying

Drafting a surveying prerequisites should not be required if students have basic mechanical drafting skills, rudimentary surveying experience and understand the concepts of topography.

Soil and Site Evaluation Evaluation Form

Reviewer: _____

We are requesting your assistance in reviewing the modules developed through the On-Site Consortium curriculum project. Please complete the following form while reviewing the materials

With a rating scale of 1 (Disagree) to 5 (Agree), please respond to the following questions

Review of printed materials:

	Disagree				Agree
The text completely covers the topic area.	1	2	3	4	5
The visuals completely cover the topic area.	1	2	3	4	5
The discussion notes completely cover the topic area.	1	2	3	4	5

Review of learning objectives:

I gained a better understanding of how to perform a Soil and Site Evaluation.	1	2	3	4	5
I gained a better understanding of existing Soil and Site Evaluation documentation.	3	4	5	1	2
I gained a better understanding of Soil and Site Evaluation equipment needed.	1	2	3	4	5

What specific recommendations would you provide for the text. _____

What specific recommendations would you provide for the visuals. _____

What specific recommendations would you provide for the notes. _____

Please give specific positive comments on the topic/module. _____

