Syllabus for CET2251 - Soil Technology

General Information

Course Title - Soil Technology
Course Number - CET2251

Credits - 4 credits
Class Hours - 42 hours (3 hours per week)
Laboratory Hours - 42 hours (3 hours per week)
Prerequisite Courses - None

Professor - Larry Sutter
Room 232 EERC Building
487-2268
llsutter@mtu.edu
Office Hours: By Arrangement

Course Outcomes - Introduce and apply the fundamentals of soils engineering technology including soil composition, classification, testing, strength, and basic foundation design for solving civil engineering and construction problems. Also introduce the standardized field and laboratory tests used to verify the properties of soils for construction.

Course Description - An introduction to the engineering properties of soils, and the corresponding laboratory tests needed to classify and identify these properties.

Textbooks - "Soils in Construction"
W.L. Schroeder, S.E. Dickenson
ISBN 0-13-048917-4

References - To be handed out in class or distributed on the WWW.

Computer Usage - Moderate - Must use a word processor to prepare reports, spreadsheets for calculations and plotting data, and e-mail program for communicating with the Professor and other students.

Calculus Usage - None

Library usage - Will be required to review ASTM standards in the Library

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Grading

Attendance/Participation - Recommended **20 Points Overall**

Communication Skills Required - Students will be asked to write lab reports and write paragraphs as part of the quizzes and examinations. **10 Points Overall**

Quizzes and Homework - Quizzes lasting approximately 20 minutes will be given in class as appropriate. Approximately 1 homework assignment (average) will be collected for grading each week. A quiz or homework assignment is weighted for significance by the total possible number of points allotted for the individual assignment. **35 Points Overall**

Hour Examinations - 3 - One (1) hour examinations. **35 Points Overall**

Final Examination - Comprehensive **20 Points Overall**

Laboratory - Specifics on laboratory assignments and grading will be given out in lab by the instructor, Ron Mauno **80 Points Overall**

Overall Grading 200 point system / Converted to Percent Overall via a straight curve
Note: Straight curve means 100%-95%=A, 94%-90%=AB, 89%-85%=B, 84%-80%=BC, 79%-75%=C, 74%-70%=CD, 69%-65%=D, below 65%=F. All fractional values of Overall Grade rounded up.

Late Assignments All late assignments will have 10% deducted for each day late. No assignments accepted after 7 calendar days.

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Grading cont.

Example Calculation

Quizzes and Homework	Homework 1 - 5/5
	Homework 2 - 6/10
	Homework 3 - 9/10
	Homework 4 - 8/10
	Homework 5 - 9/10
	Homework 6 - 8/10
	Homework 7 - 7/10
	Homework 8 - 14/20
	Homework 9 - 8/10
	Homework 10 - 9/10
	Homework 11 - 7/10
	Homework 12 - 9/10
	Quiz 1 - 8/10
	Quiz 2 - 0/20
	Quiz 3 - 8/10

Quiz/Homework Grade = 115/165 = 69.7% = 24.4 overall points

Examinations	Exam 1 - 92%
	Exam 2 - 89%
	Exam 3 - 88%

Examination Ave. = 89.7% = 31.4 overall points

Final Examination **Final - 79% = 15.8 points**

*Class Participation ** **100% = 20.0 points**

*Communication ** **90% = 9.0 points**

** Based upon instructor review, and as applicable, peer review.*

Laboratory **68 of 80 possible points = 68/80 =85% = 68 points**

Overall Grade **168.6 of 200 possible points = 168.6/200 =84.3% = B**

Cheating and Plagiarism

Anyone engaging in activities deemed to constitute cheating or plagiarism will be given an F in the course and turned over to the Dean of Students for disciplinary action consistent with the Code of Student Conduct and University Policies.

Unless otherwise instructed in writing by the Professor, all students are expected to do their own assignments and examinations.

MTU complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990 (ADA).

If you have a disability and need reasonable accommodation for equal access to education or services, please contact the Dean of Students Office for assistance. For other concerns about discrimination, you may contact your advisor, department head, or the Affirmative Action Office.

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	Recitation
Week 1	Intro to Geology Weathering, Soil Deposits, Soil Constituents Sieve Analysis, Index Properties
Week 2	Soil Particle Size, Gradations Clay Mineralogy Soil Classifications in General, Soil Size Terminology, Hydrometer Tests
Week 3	Soil Phase Relationships Soil Phase Relationships Soil Phase Relationships
Week 4	**EXAM 1** Soil Plasticity, Atterberg Limits, Soil Structure Soil Classifications - USDA, AASHTO, Unified
Week 5	Soil Classifications - USDA, AASHTO, Unified Soil Classifications - USDA, AASHTO, Unified Soil Compaction
Week 6	Soil Compaction, Proctor Test, Unit Weight Soil Water Relationships Soil Water Relationships, Permeability
Week 7	Stress, Mohr's Circle Effective Stress Effective Stress, Vertical Earth Pressure
Week 8	**EXAM 2** Effective Stress, Capillary Rise Compressibility
Week 9	Consolidation Soil Strength Soil Strength Tests
Week 10	Earth Volume Calculations Field Explorations
Week 11	Soils Reports Dewatering Groundwater Conditions
Week 12	**EXAM 3** Excavations and Supports Foundation Construction - Bearing Failure
Week 13	Foundation Construction - Settlement Analysis Footings and Rafts Foundation Pilings
Week 14	Drilled Piers Pavement Components, Subgrade Materials Methods of Construction and Compaction