Course UnitTitle	Soil Mechanics I
Course UnitCode	CE361
Typeof Course Unit	Compulsory
Levelof Course Unit	1
NationalCredits	4
Number of ECTSCreditsAllocated	6
Theoretical(hour/week)	4
Practice(hour/week)	--
Laboratory (hour/week)	1
Yearof Study	3
Semester whenthecourse unit isdelivered	1
Course Coordinator	AnooshehIravanian
Name of Lecturer (s)	AnooshehIravanian
Name of Assistant(s)	Ellen Adu-Parkoh
Modeof Delivery	FacetoFace; Formal Lectures and Laboratory practice
Language of Instruction	English
Prerequisitesandco-requisites	Geo102
RecommendedOptionalProgramme Components	Basic knowledge of Physics.

Objectivesof theCourse:

The students are expected to get introduces to engineering problems involving soil and ground investigation. Topics including: Soil description and classification. Phase relationship. Compaction of soil, Hydrostatic and excess pore pressure, principles of effective stress. Permeability, Darcy's law, seepage and flow nets.

Learning Outcomes

	Whenthiscourse hasbeencompletedthe studentshould be ableto	**Assessment**
1	After completion of this course students are expected to be familiar to soil classifications and be able to solve phase relationship, soil basic stress and permeability related problems	1

AssessmentMethods:1. WrittenExam2.Assignment3. Project/Report 4.Presentation 5. Lab.Work

Course'sContributionto Program

		CL
1	Ability to relate and apply fundamental sciences to learning the essential civil engineering concepts and theories of different branches.	5
2	Ability to understand the derivation of these concepts and theories by relating them to the real-life engineering cases within the related civil engineering branch.	5
3	Ability to define clearly and analyze the engineering problems by applying the introduced civil engineering concepts and theories of the related branch.	3

4	Ability to use decision-making skills and perform design calculations correctly for the solution of the defined problem/project by applying the introduced theories of the related civil engineering branch.	3
5	Ability to understand and carry out the practical applications of learned civil engineering concepts and theories on site and/or laboratory.	4
6	Ability to use software packages for the analysis and/or the design of the defined civil engineering problems/projects.	2
7	Ability to manage time and resources effectively and efficiently while carrying out civil engineering projects.	4
8	Ability to participate in team-works in a harmonized manner for the solution of the targeted problem.	4
9	Ability to write technical reports and/or to carry out presentations on the studied engineering project using the modern techniques and facilities.	3
10	Ability to carry out and finalize a civil engineering study/project by showing professional ethics.	2
CL:Contribution Level(1:VeryLow, 2: Low, 3:Moderate,4:High,5:VeryHigh)		

Course Contents

Week	Chapter		Exams
136.	1	**Introduction to geotechnical engineering and soil problems**	
137.	2	**Phase relationships, theory, phase diagram**	
138.	2	**Phase relationship problems, solving example**	
139.	2,3	**Particle distribution analysis, sieve analysis, Hydrometer**	
140.	3	**Using standard tables for classification**	
141.	3	**Soil classification examples and Atterberg limits**	Quiz
142.	4	**Atterberg limits and related formulas, tests, examples**	
143.			Mid-term Examination
144.	5	**Soil compaction**	
145.	5	**Compaction examples**	Quiz

146.	6	**Stresses in Soil masses**	
147.	6,7	**Effective stress and hydrostatic pressure**	
148.	7	**Darcy‘s law, Flow-net**	
149.	7	**Calculation of permeability and uplift pressure in soil**	Quiz
150.			Final Examination

RecommendedSources

Textbook: Principles of Geotechnical Engineering, Braja M. Das

SupplementaryMaterial(s): **Craig'sSoil Mechanics, R. F. Craig**

Assessment

Attendance& Assignment	5%	
MidtermExam(Written)	30%	
Quiz (Written)	10%	
Final Exam(Written)	45%	
Lab reports	10%	
Total	100%	

ECTSAllocatedBased on theStudentWorkload

Activities	**Number**	**Duration (hour)**	**Total Workload(hour)**
Course durationinclass(includingthe Exam week)	15	4	60
Tutorials and Laboratory	6	2	12
Assignments	2	2	4
Project/Presentation/ReportWriting	6	4	24
E-learning Activities	--	--	
Quizzes	3	1	3
MidtermExamination	1	2	2
FinalExamination	1	2	2
Self-Study	15	4	60
TotalWorkload			167
TotalWorkload/30 (h)			5.6
ECTS Creditof the Course			6