

Geotechnical and Road Engineering Module				
Course Title	Soil Mechanics-II			
Course Code	CEng2112			
Program	B.Sc in Water Resources and Irrigation Engineering			
Module name	Geotechnical and Road Engineering			
Module Coordinator	Name: Office location Mobile:; e-mail: Consultation Hours: _____			
Instructor Name	Name: Office location Mobile:; e-mail: Consultation Hours: _____			
Course Information	Academic Year Year : Semester: Meeting Day: Meeting Time: Meeting Location:			
ECTS	5			
Students' work load in hrs	Lecture	Tutorial	Lab	Home study
	2	2	2	2
Course objectives& Competences to be Acquired	<ul style="list-style-type: none"> ➤ Understand and estimate shear strength of soils, ➤ Estimate bearing capacity, ➤ Estimate slope stability and stability of slopes 			
Course Description	<ul style="list-style-type: none"> • Shear strength of soils: shear resistance of soils, stress at a point and Mohr stress circle, shear characteristics of soils, Mohr-Coulomb failure criteria, and shear stress test. Contact pressure distribution. • Bearing capacity of soils: general determination of bearing capacity of soils using different methods. • Lateral earth pressure problems, earth pressure theories. • Slope stability problems: slope movements, slope stability analysis, stability considerations in retaining walls and sheet pile walls. • Laboratory tests: direct shear test, triaxial compression test, unconfined compression test. 			
Pre-requisite	Soil Mechanics I			
Status of Course	Compulsory			
Schedule/syllabus				
Week	Topics			Required Text
1	1. Introduction (Lec=2hrs)			
1	2. Shear strength of soils (Lec=10hrs, Tut=10hrs) 2.7 shear resistance of soils 2.8 stress at a point and Mohr stress circle 2.9 shear characteristics of soils 2.10 Mohr-coulomb failure criteria 2.11 Shear stress test.			

	2.12 Contact pressure distribution	
	3. Bearing capacity of soil (Lec=10hrs, Tut=10hrs) 3.1. Introduction 3.2. bearing capacity of soils using different method 3.3. Lateral earth pressure 3.4. Earth pressure theories	Mechanics, prentice Hall, London.
2	4. Slope stability (Lec=8hrs, Tut=10hrs) 4.1. Slope stability and movements 4.2. Slope stability analysis 4.3. Stability considerations in retaining walls and sheet pile walls.	Roy Whitlow, (2001). basic soil mechanics, prentice Hall, London.
Summary of Teaching and Learning Method	Lecture, discussion, individual work, problem solvig	
Assessments	10% quizzes	All Chapters
	20% tests	
	20% assignments and projects	
	50% final exam	
Course Expectation	<p>Preparedness and participation: both students and the teacher should be prepared since education is an interactive process. Students should be active participants in the teaching-learning process. They should be interested to the course and come to class with the necessary materials such as exercise books and pen. In addition, they should to take responsibility in their education.</p> <p>Teachers are also expected be prepared and interested to the course, which they are offering. They have to consult the essential materials ahead of time and try share their knowledge in an efficient and effective manner.</p> <p>Material availability: reference materials are expected to be available in the library nearest to respective faculties.</p>	
Policy	<p>Attendance: students should attend at least 85%</p> <p>Assignments: all students must do all the assignments given Tests/quizzes: all students must sit/take all tests/quizzes given Cheating/plagiarism: cheating/plagiarism is strictly forbidden. It will result in disqualification of the course.</p>	
Reference	<ul style="list-style-type: none"> • Das, Braja, Principles of Geotechnical Engineering, 5th ed., Brooks/Cole, 2002. • Roy Whitlow, (2001). Basic Soil Mechanics, Prentice Hall, London. • Smith, G.W., (1982). Elements of Soil Mechanics for Civil and mining Engineers, GRANADA, London. • Terzaghi, K. and Ralph B. Peck, (1967). Soil Mechanics in Engineering Practice, 2nd Edition, John Wiley and Sons, New York. • Budhu, M, Soil Mechanics and Foundations, Wiley and Sons, (2000) • Arorra, K.R, Soil Mechanics and Foundation Engineering, 1st ed (1997) • Murthy, V.N.S, Geotechnical Engineering 	