REFERENCE SITE
http://classroom.google.com/...../.....

COURSE INFORMATION	
Course Code: EWCE 342	Credit Hour: 1.5
Course Title: Soil Mechanics Sessional	Contact Hour: 3.0

PRE-REQUISITE

EWCE-101(Analytical Mechanics), EWCE-200 (Details of Construction and Quantity Surveying), EWCE-201 (Construction Materials), EWCE-203 (Geology and Geomorphology), EWCE-211 (Mechanics Solid-I), EWCE-263 (Hydrology) , EWCE-261 (Fluid Mechanics)

CURRICULUM STRUCTURE

Outcome Based Education (OBE)

SYNOPSIS/ RATIONALE

In this sessional course students will be given the basic knowledge on different types of soil investigation equipment and techniques for both laboratory and field tests of soil samples. This knowledge will be will be useful in later semesters in performing thesis and project work, and also in professional life.

OBJECTIVE

1. To gain knowledge on the basics of soil investigation techniques.
2. To become skilled at the design and construction of footings, rafts and piles in sand and clay type soil.
3. To devise the theories for stability of slopes

COURSE OUTCOMES & GENERIC SKILLS

No	Course Outcome	Corresponding POs	Bloom's Taxonomy*	CP	CA	KP	Assessment Methods
CO1	Be able to **determine** various properties of soil like index properties, compressibility and pressure exists in soil, strain-stress characteristics using standard equipment	PO – 1	C5	1		1, 3	R, M, V
CO2	Be able to **analyse** the performance of soil under compaction, consolidation, seepage etc	PO – 2	C4	1		1, 4	R, F, V

**Level of Bloom's Taxonomy:*

C1-Remember C2-Understand C3-Apply C4-Analyze C5-Evaluate C6-Create

(CP – Complex Problems, CA – Complex Activities, KP – Knowledge Profile, M – Mid Quiz, R – Report, F – Final Quiz, Asg – Assignment V-Viva.)

COURSE CONTENT

Field identification tests of soils, grain size analysis by sieve and hydrometer, specific gravity test, Atterberg limits test, permeability tests, unconfined compression test, compaction test, relative density test, direct shear tests, consolidation tests, test of

geotextiles.

SKILL MAPPING (CO – PO MAPPING)

No	Course Outcome	PROGRAM OUTCOMES (POs)											
		1	2	3	4	5	6	7	8	9	10	11	12
CO1	Be able to **determine** various properties of soil like index properties, compressibility and pressure exists in soil, strain-stress characteristics using standard equipment	3											
CO2	Be able to **analyze** the performance of soil under compaction, consolidation, seepage etc.		3										

(Numerical method used for mapping which indicates 3 as high, 2 as medium and 1 as low level of matching)

JUSTIFICATION FOR CO – PO MAPPING

	Mapping	Corresponding Level of Matching	Justifications
	CO1 – PO1	3	Knowledge of mathematics, natural science and engineering fundamentals has to be applied to **determine** various properties of soil like index properties, compressibility and pressure exists in soil, strain-stress characteristics using standard equipment
	CO2 – PO2	3	Be able to **analyse** the performance of soil under compaction, consolidation, seepage etc. by using the principles of mathematics, the natural sciences and the engineering sciences

TEACHING AND LEARNING STRATEGY

	Teaching and Learning Activities	Engagement (Hours)
	Face-to-face Learning	
	• Lecture	12
	• Practical/ Tutorial/ Studio	24
	• Student – Centered Learning	--
	Self- Directed Learning	
	• Non-face-to-face learning	12
	• Revision of the previous lecture at home	12
	• Preparation for final examination	14
	Formal Assessment	
	• Continuous Assessment	24

	• Final Examination	1.5
	Total	99.5

TEACHING METHODOLOGY

Lecture and Discussion, Problem Based Method

COURSE SCHEDULE

		Intended Topics to be Covered	Assessment
Week 1			
	Class 1	Introduction	
Week 2			
	Class 2	Field identification tests of soils	
Week 3			
	Class 3	Grain size analysis of soil by sieve and hydrometer	
Week 4			
	Class 4	Specific gravity test of soil	
Week 5			
	Class 5	Atterberg limits test	
Week 6			
	Class 6	Relative density test	
Week 7			
	Class 7	Mid Quiz	
Week 8			
	Class 8	Constant head and falling head permeability tests	
Week 9			
	Class 9	Unconfined compression test	
Week 10			
	Class 10	Compaction test (standard and modified)	
Week 11			
	Class 11	Direct shear tests	
Week 12			
	Class 12	Consolidation test (one dimensional)	
Week 13			
	Class 13	Triaxial compression test (UU, CU and CD)	
Week 14			
	Class 14	Final Quiz	

ASSESSMENT STRATEGY

Components		Grading	CO	Bloom's Taxonomy
Continuous Assessment (40%)	Class Test/ Assignment (1-3)	20%	CO1	
	Class Participation	5%	CO2	
	Mid Term	15%	CO1, CO2	
Final Exam		60%	CO1	C5
			CO2	C4
Total Marks		100%		

(CO = Course Outcome, C = Cognitive Domain, P = Psychomotor Domain, A =

Affective Domain)
REFERENCES BOOKS
1. Geotechnical Engineering Laboratory Handout: MIST 2. Soil Mechanics Laboratory Manual – B.M. Das 3. ASTM Standards for Geotechnical Engineering
REFERENCE SITE
http://classroom.google.com/...../.....

COURSE INFORMATION	
Course Code: EWCE 343	Credit Hour: 3.0
Course Title: Geotechnical and Foundation Engineering	Contact Hour: 3.0
PRE-REQUISITE	
EWCE 341(Principles of Soil Mechanics), EWCE 342(Soil Mechanics Sessional)	
CURRICULUM STRUCTURE	
Outcome Based Education (OBE)	
SYNOPSIS/ RATIONALE	
This course will help the students to get in-depth knowledge about sub-soil conditions and design, construction of different types of foundations which will be very helpful in their professional life.	
OBJECTIVE	
1. To become skilled in exploring subsoil condition and in determining the properties of underlying soil of a site. 2. To gain knowledge on the analysis, design and construction of footing, raft and pile foundations in various types of soil conditions. 3. To acquire knowledge on the analysis and design of natural and man-made soil slopes.	

COURSE OUTCOMES & GENERIC SKILLS

No	Course Outcome	Corresponding POs	Bloom's Taxonomy*	CP	CA	KP	Assessment Methods
CO1	Be able to **explore** the subsoil condition of a site and to determine the properties of foundation soil in order to design and construct proper types of foundation of any civil engineering structures.	PO – 1	C1	1		1,3	T, F
CO2	Be expert in **evaluating** the bearing capacity and settlement for the purpose of designing footing and raft foundations for a structure on various subsoil and loading conditions.	PO – 2	C5	3		3	T, M, F