جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor
CVEN443 Foundation Engineering

ACADEMIC YEAR	2020-21	**SEMESTER**	Spring
Course Code	CVEN443	**Course Title**	Foundation Engineering
Credit hours	3	**Level of study**	Year 4
College / Centre	Engineering		
Co-requisites		**Pre-requisites**	CVEN 260

1. COURSE OUTLINE

[This course discusses geotechnical analysis and design of shallow foundations and deep foundations

2. AIMS

[The course provides students with the fundamentals of foundation engineering and application of these principles to practical engineering problems, such as shallow foundations and deep foundations

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes ***(Definitive)*** Upon successful completion of this course, students will be able to**:**	**Teaching and Learning methods** ***(Indicative)***	**Assessment** ***(Indicative)***
1. Explain the fundamentals of foundation engineering	Lectures	Assignments
2. Perform the analysis and design (bearing capacity and settlement) of shallow foundations	Lectures	Assignments
3. Perform the analysis and design (bearing capacity and settlement) of deep foundations	Lectures	Assignments
4.		

4. ASSESSMENT WEIGHTING

Assessment	**Percentage of final mark (%)**
1st Examination	20
2nd Examination	20
Assignments	20
Final Examination	40
Total	100

5. ACHIEVING A PASS

Students will achieve 3 credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%.**

6. COURSE CONTENT (Indicative)

WEEK	LECTURE TOPIC	TIME (HOURS)
1	Introduction	1.5
	Foundations in civil engineering	1.5
2	Shallow foundations	1.5
	Bearing capacity and limit analysis	1.5
3	Bearing capacity and limit analysis	3.0
4	Bearing capacity in undrained materials	3.0
5	Bearing capacity in drained materials	3.0
6	Stresses beneath shallow foundations	3.0
7	Settlements from elastic theory	3.0
8	Settlements from consolidation theory	3.0
9	Settlement from in-situ test data	3.0
10	Limit state design	3.0
11	Deep foundations	1.5
	Pile resistance under compressive loads	1.5
12	Pile resistance from in-situ test data	3.0
13	Settlement of piles	3.0
14	Piles under tensile loads and load testing	3.0
15	Pile groups	1.5
	Summary	1.5
	TOTAL HOURS	**45**
1 - 15	Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	
	TOTAL COURSE HOURS	**45**

7. RECOMMENDED READING

Core text/s:

1. Craig's Soil Mechanics, J.A. Knappett, R.F. Craig, 8th Ed., Spon Press, 2012
2. Foundation Design: Principles and Practice, D.P. Coduto, 2nd Ed., Prentice Hall, 2001

Library + online resources:

8. OPEN RESOURCES
https://ocw.mit.edu/courses/civil-and-environmental-engineering/1-361-advanced-soil-mechanics-fall-2004/