جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

CVEN538 Earth Retaining Structures

ACADEMIC YEAR	2020-21	**SEMESTER**	Spring
Course Code	CVEN538	**Course Title**	Earth Retaining Structures
Credit hours	3	**Level of study**	Undergraduate
College / Centre	Engineering		
Co-requisites		**Pre-requisites**	CVEN443

1. COURSE OUTLINE

[This course discusses analysis and design of earth retaining structures, such as gravity retaining structures, embedded walls, braced excavation or reinforced soil retaining structures, etc.

2. AIMS

[The course provides students with the fundamentals of earth retaining structures and lateral earth pressures and application of these principles to practical engineering problems, such as gravity retaining structures, embedded walls, braced excavation or reinforced soil retaining structures, etc.

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. Select appropriate retaining wall system	Lectures	Assignments
2. Calculate lateral earth pressure	Lectures	Assignments
3. Perform the analysis and design of gravity retaining structures	Lectures	Assignments
4. Perform the analysis and design of embedded wall, braced excavation or reinforced soil retaining structure	Lectures	Assignments

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%.**

NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

WEEK	LECTURE TOPIC	TIME (HOURS)
1	Introduction	1.5
	Earth retaining structures	1.5
2	Limiting earth pressures from limit analysis	3.0
3	Limiting earth pressures from limit analysis	3.0
4	Limiting earth pressure from limit analysis	2.0
	Earth pressure at rest	1.0
5	Gravity retaining structures	3.0
6		3.0
7	Gravity retaining structures : cantilever reinforced walls	3.0
8	Gravity retaining structures: mass gravity walls	3.0
9	Gravity retaining structures: design examples	3.0
10	Gravity retaining structures: design examples	3.0
11	Coulomb's theory of earth pressure	3.0
12	Embedded walls	3.0
13	Embedded walls: design examples	3.0
14	Embedded walls: design examples	3.0
15	Braced excavation, reinforced soil retaining structures	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. Earth Pressure and Earth Retaining Structures, C.R.I. Clayton, R.I. Woods, A.J. Bond, J. Milititsky, 3rd Ed., CRC Press, 2014

Library + online resources:

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