



Course Descriptor CVEN520 Rock Engineering

ACADEMIC YEAR	2020-21	SEMESTER	Spring
Course Code	CVEN 520	Course Title	Rock Engineering
Credit hours	3	Level of study	Year 4
College / Centre	Engineering		
Co-requisites		Pre-requisites	CVEN 260

1. COURSE OUTLINE

[This course discusses the fundamental principles of rock mechanics. Which includes design considerations, site investigations, and rock mass characterization. Besides addressing the topics of deformation and settlement of rock masses, bearing capacity, and stability of rock masses.

2. AIMS

[The course provides students with general understanding of the fundamentals of rock mechanics, rock foundations, and stability of rock slopes.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
Upon successful completion of this course, students will be able to:		
1. Understanding the principles of the rock mechanics discipline	Lectures	Assignments
2. Perform designs for different types of foundations on rock	Lectures	Assignments
3. Analyzing the stability of rock slopes and designing remedial alternatives	Lectures	Assignments
4.		

4. ASSESSMENT WEIGHTING

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



Course Descriptor
CVEN520 Rock Engineering

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
		1.5
2	Design Considerations	1.5
		1.5
3	Site Investigations	1.5
		1.5
4	Rock Mass Characterization	1.5
		1.5
5	Deformation and Settlement	1.5
		1.5
6	Bearing Capacity	1.5
		1.5
7	Sliding Stability	1.5
		1.5
8	Cut Slope Stability	1.5
		1.5
9	Anchorage Systems	1.5
		1.5
10	Instrumentation	1.5
		1.5
11	Construction Considerations	1.5
		1.5
12	Groundwater flow in fractured rock	1.5
		1.5
13	Numerical Analysis	1.5
		1.5
14	Blasting	1.5
		1.5
15	Summary	1.5
		1.5
	TOTAL HOURS	45
1 - 15	Plus RECOMMENDED INDEPENDENT STUDY HOURS	
	TOTAL COURSE HOURS	45



Course Descriptor
CVEN520 Rock Engineering

+7. RECOMMENDED READING

Core text/s:

EM 1110-1-2908. 30 November 1994. *US Army Corps of Engineers. ENGINEERING AND DESIGN. Rock Foundations. ENGINEER MANUAL.*

Rock Slope Engineering: Civil Applications, Fifth Edition - CRC Press Book. ... A worthy successor to Evert Hoek's classic reference book.

Library + online resources:

8. OPEN RESOURCES

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