جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

CVEN545 Analysis of Structures II

ACADEMIC YEAR	2020-21	**SEMESTER**	Fall
Course Code	CVEN545	**Course Title**	Analysis of Structures II
Credit hours	3	**Level of study**	Undergraduate
College / Centre	Engineering		
Co-requisites		**Pre-requisites**	CVEN 340

1. COURSE OUTLINE

[This course deals with advanced structural methods such as flexibility and stiffness matrix methods.

2. AIMS

[The aim of this course is to understand principle of member stiffness and structural stiffness relations and to determine forces and deflections of framed structures using matrix stiffness method by hand calculations.

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. Understanding concepts of Variational approaches	Lectures	Assignments
2. Understanding the physical interpretation of local members stiffnesses and global structural stiffness, and using their interrelationships to analyze the entire structure	Lectures	Assignments
3. Determine deflections and forces of plane trusses, continuous beams, plane frames, besides three-dimensional truss and frame structures	Lectures	Assignments
4. Understand the principles for creating computer programs which implement the matrix stiffness method	Lectures	Assignments

4. ASSESSMENT WEIGHTING

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

Course Descriptor
CVEN260 Geotechnical 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%.**

6. COURSE CONTENT (Indicative)

LECTURE TOPIC	TIME (HOURS)
Introduction	1.5
	1.5
Variational Approaches for Structural Analysis	1.5
	1.5
	1.5
Member Force-Deformation Relations	1.5
	1.5
	1.5
Stiffness Method	1.5
	1.5
	1.5
Application of Stiffness Method to Truss Problems	1.5
	1.5
	1.5
Application of Stiffness Method to Beam Problems	1.5
	1.5
	1.5
Application of Stiffness Method to Frame Problem	1.5
	1.5
	1.5
Introduction for Programming the Stiffness Method	1.5
	1.5
	1.5
	1.5
Exercises and applications	9
TOTAL HOURS	**45**
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	**90**
TOTAL COURSE HOURS	**135**

7. RECOMMENDED READING

Core text/s:

Fundamentals of Structural Analysis", Harry H. West, and Louis F. Geschwinder, 2nd Edition, John Wiley and Sons, Inc. (2002)

8. OPEN RESOURCES

https://ocw.mit.edu/courses/civil-and-environmental-engineering/1-571-structural-analysis-and-control-spring-2004/