TISHK INTERNATIONAL UNIVERSITY
FACULTY OF ENGINEERING
Department of CIVIL ENGINEERING,
2020-2021 Spring
Course Information for CE 320 STRUCTURAL ANALYSIS II

Course Name:	STRUCTURAL ANALYSIS II

Code	Regular Semester	Theoretical	Practical	Credits	ECTS
CE 320	6	4	-	4	

Name of Lecturer(s)-Academic Title:	Junaid Kameran - MSc
Teaching Assistant:	Na
Course Language:	English
Course Type:	Main
Office Hours	Thursday 3 - 5 pm
Contact Email:	junaid.kameran@tiu.edu.iq Tel:07508965170
Teacher's academic profile:	.
Course Objectives:	After reading this course the student will be able to: 1- Differentiate between determinate and indeterminate structures, and degree of statically indeterminacy. 2. Determine the max deflection and elastic curve for determinate and indeterminate structures. 3- Analysis of statically indeterminate structures by force and displacement methods (slope-deflection, moment distribution with or without joint translation one degree or multi-degree of freedom. 4- Frame analysis using stiffness method
Course Description (Course overview):	Deflection of beams and frames by: Unit load method, Moment area method, Deflection of trusses, Deflection of composite structures, Analysis of indeterminate Beams.(force method), Analysis of indeterminate Frames (force method), Analysis of indeterminate Trusses, Analysis of indeterminate Beams (slope deflection method), Analysis of indeterminate Frames (Slope deflection method), Analysis of indeterminate Beams (Moment distribution method), Analysis of indeterminate Frames (Moment distribution method), Introduction to stiffness method.

COURSE CONTENT

Week	Hour	Date	Topic
1	4	31/1-4/2/2021	introduction to the course
2	4	7-11/2/2021	Elastic deformations of structures, curvature of elastic line, external work and internal work, methods of virtual work (unit load method).
3	4	14-18/2/2021	Elastic deformations of structures, curvature of elastic line, external work and internal work, methods of virtual work (unit load method).
4	4	21-25/2/2021	Analysis of statically indeterminate structures by the method of consistent deformations, analysis of beams, Illustrated examples
5	4	28/2-4/3/2021	Analysis of statically indeterminate structures by the method of consistent deformations, analysis of rigid frames, Analysis of statically indeterminate trusses by the method of consistent deformations, Illustrated examples
6	4	7-11/3/2021	Analysis of statically indeterminate structures by the method of consistent deformations, analysis of rigid frames, Analysis of statically indeterminate trusses by the method of consistent deformations, Illustrated examples
7	4	28/3-1/4/2021	Analysis of statically indeterminate beams and rigid frames by the slopedeflection method. General, Basic slope deflection equations, procedure of analysis, Analysis of statically indeterminate beams. Illustrated examples
8	4	4-8/4/2021	Analysis of statically indeterminate beams and rigid frames by the slopedeflection method. General, Basic slope deflection equations, procedure of analysis, Analysis of statically indeterminate beams. Illustrated examples

9	4	11-15/4/2021	Midterm Exam
10	4	18-22/4/2021	Midterm Exam
11	4	25-29/4/2021	Analysis of statically indeterminate beams and rigid frames without of joint translation, Analysis of statically indeterminate beams and rigid frames with one and two degree of freedom of joint translations.
12	4	2-6/5/2021	Analysis of statically indeterminate beams and rigid frames without of joint translation, Analysis of statically indeterminate beams and rigid frames with one and two degree of freedom of joint translations.
13	4	9-13/5/2021	Moment distribution with joint translation. General, fixed –end moment due to joint translation, analysis of statically indeterminate rigid frames with one degree of freedom of joint translation by moment distribution, illustrated examples.
14	4	16-20/5/2021	Moment distribution with joint translation. General, fixed –end moment due to joint translation, analysis of statically indeterminate rigid frames with one degree of freedom of joint translation by moment distribution, illustrated examples.
15	4	23-27/5/2021	Analysis of beams by stiffness method
16	4	30/5-3/6/2021	Analysis of Plane frames by stiffness method
17	4	6-10/6/2021	Final Exam
18	4	13-17/6/2021	Final Exam

COURSE/STUDENT LEARNING OUTCOMES

1	Knowledge about the indeterminate structures and methods for analyzing such structures
2	An ability to draw the elastic curve for beam and frame structures and find max deflection
3	Analysis of Indeterminate beams
4	Analysis of Indeterminate frames
5	Stiffness method for analyzing plane frame structures

COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced)

	Program Learning Outcomes	**Cont.**
1	Apply the principles of engineering, science, and mathematics to identify, formulate, and solve Petroleum and Mining Engineering problems.	I
2	apply designs to produce solutions that meet specified Petroleum and Mining project needs with consideration of health, safety, and environment.	I
3	make judgments in Petroleum and Mining Engineering situations by considering the global, economic, and environmental impacts.	I
4	function effectively and demonstrate professionalism in both individual and group settings by creating a collaborative environment.	P
5	develop and conduct appropriate Petroleum and Mining experiments and researches using qualitative and quantitative methods.	P
6	analyze and interpret data of Petroleum and Mining experimentation correctly.	
7	make logic and reasonable engineering estimation of data to design a solution for specific Petroleum and Mining Engineering projects.	
8	apply advanced knowledge and modern engineering tools as needed	I
9	design systems, components or processes to meet the needs and demands of the profession of Petroleum and Mining Engineering projects.	I
10	apply the Petroleum and Mining Engineering concepts to other energy sectors such Geothermal.	I

Prerequisites (Course Reading List and References):	Engineering Mechanics and Strength of Material
Student's obligation (Special Requirements):	Attend the class on time Be active in class and participate in solving problems and discussions Submit all home works on time and do not copy !
Course Book/Textbook:	R.C. Hibbeler, Structural Analysis, 9th edition in SI units, 2015
Other Course	Lecture notes

Materials/References:	
Teaching Methods (Forms of Teaching):	Lectures, Practical Sessions, Excersises, Assignments

COURSE EVALUATION CRITERIA

Method	Quantity	Percentage (%)
Attendance	1	3
Participation	0	0
Quiz	4	5
Homework	7	1
Midterm Exam(s)	1	30
Final Exam	1	40
Total		**100**

Examinations: True-False, Multiple Choices, Short Answers, Matching

Extra Notes:

ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD

Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	18	4	72
Practical Hours	18	0	0
Final Exam	1	10	10
Attendance	1	4	4
Participation	0	1	0
Quiz	4	8	32
Homework	7		0
Midterm Exam(s)	1		0
Total Workload			**118**
ECTS Credit (Total workload/25)			**4.72**

Peer review

Signature:	Signature:	Signature:
Name:	Name:	Name:
Lecturer	Head of Department	Dean