

<p style="text-align: center;">TISHK INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING Department of CIVIL ENGINEERING, 2020-2021 Spring Course Information for CE 435 INTRODUCTION TO EARTQUAKE ENGINEERING</p>					
Course Name:		INTRODUCTION TO EARTQUAKE ENGINEERING			
Code	Regular Semester	Theoretical	Practical	Credits	ECTS
CE 435	7	3	-	3	
Name of Lecturer(s)- Academic Title:		Najmadeen Saeed -			
Teaching Assistant:		-			
Course Language:		English			
Course Type:		Area Elective			
Office Hours		Wednesday 15:3016:30 & Thursday 11:0012:00			
Contact Email:		najmadeen.qasre@tiu.edu.iq Tel:07501533372			
Teacher's academic profile:		-B.Sc. Building Engineering (2002) -M.Sc. Structural Engineering (2010) -Ph.D. Structural Engineering (2015)			
Course Objectives:		The Objectives of the Course are: 1. Comprehensions about earthquakes, main causes and effects on humanity. 2. Evaluation of earthquakes, measurements and locating it. 3. Understanding the basics about dynamic characteristics of buildings and their behaviour while affecting by an earthquake. 4. Explaining the types of failure that occur due to soil or structural problems. 5. Showing the improvements of soil and structural weaknesses. 6. Illustration of the main lateral force resisting systems in buildings. 7. Typical earthquake performance of steel and concrete buildings, then the common mistakes in practice.			
Course Description (Course overview):		Cause of earthquakes, characteristics of earthquake ground motions, earthquake magnitude and response analysis of simple structures. Derivation of elastic response spectra and earthquake design criteria. Free and forced vibration analysis of frame structures. Modal spectra analysis and equivalent design codes, design applications.			
COURSE CONTENT					
Week	Hour	Date	Topic		
1	3	31/1-4/2/2021	Introduction to Earthquakes I		
2	3	7-11/2/2021	Introduction to Earthquakes II		
3	3	14-18/2/2021	Earthquake Effects On Structures		
4	3	21-25/2/2021	Architectural and Planning Aspects I		
5	3	28/2-4/3/2021	Architectural and Planning Aspects II		
6	3	7-11/3/2021	Guidelines For Earthquake Resistant Design I		
7	3	28/3-1/4/2021	Guidelines For Earthquake Resistant Design II		
8	3	4-8/4/2021	Methods Of Analysis For Earthquake Resistant Structures		
9	3	11-15/4/2021	Midterm Exam		
10	3	18-22/4/2021	Recent Improvements in Earthquake Performance I		
11	3	25-29/4/2021	Recent Improvements in Earthquake Performance II		
12	3	2-6/5/2021	Earthquake Force Resisting System I		
13	3	9-13/5/2021	Earthquake Force Resisting System II		
14	3	16-20/5/2021	Typical Earthquake Performance of Buildings I		
15	3	23-27/5/2021	Typical Earthquake Performance of Buildings II		

16	3	30/5-3/6/2021	Common Mistakes in Practice I
17	3	6-10/6/2021	Final Exam
18	3	13-17/6/2021	Final Exam
COURSE/STUDENT LEARNING OUTCOMES			
1	1 Understand about earthquakes, causes and effects, main terminologies in this topic.		
2	2 Make difference between architectural and structural aspects on earthquake resistance.		
3	3 Moreover, the course also helps students to have sufficient knowledge about dynamic characteristics of building their behaviour.		
4	4 Finally, the types of failure and methods of enhancing structures are illustrated in this course.		
COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES (Blank : no contribution, I: Introduction, P: Profecient, A: Advanced)			
Program Learning Outcomes			Cont.
1	Apply principles of mathematics, science, and engineering		I
2	Design and conduct experiments, as well as analyze and interpret data accurately.		I
3	Design an engineering system, component, or process to meet desired industrial needs.		P
4	Identify, formulate and solve complex engineering problems		P
5	Apply, in design and construction, the most modern design codes, standards and specifications such as; AISC, ACI, ASCE 7, IBC, etc.		I
6	Use the techniques, skills, and modern engineering tools, such as surveying instruments, and designing software that are necessary for engineering practices.		
7	Apply knowledge and skills in construction project management and recognition of international standards and methodologies		
8	Manage to work with multi-disciplinary teams and communicate effectively.		
9	Identify the moral values that ought to guide the Civil Engineering profession and resolve the moral issues in the profession.		I
10	Apply the principles of sustainable development in their professional duties which go in line with the paramount safety, health and welfare of the public.		P
11	Analyze the impact of engineering solutions in a global and social context		I
12	Identify the need and have the ability to engage in lifelong learning and knowledge of contemporary issues.		
Prerequisites (Course Reading List and References):		NL	
Student's obligation (Special Requirements):		Attend the Class, Lecture notes.	
Course Book/Textbook:		1 "Earthquake Engineering for Structural Design", W.F. Chen and E.M.Lui, 2nd Edition, 2006 2 Richter, C., "Elementary Seismology", W.H Freeman, 1957 3 Newmark, N. and Rosenblueth, E., "Fundamentals of Earthquake Engineering", N.J., Prentice Hall, 1971	
Other Course Materials/References:		4 Paulay, T. and. Priestley, M.J.N, "Seismic design of reinforced concrete and masonry buildings", New York, Wiley, 1992 5 Naeim, F. (Ed.), "The Seismic Design Handbook" Van Nostrand Reinhold, 2nd Edition, 2001 6 "Some Concepts in Earthquake Behaviour of Buildings", C. V. R. Murty, Rupen Goswami, A. R. Vijayanarayanan and Vipul V. Mehta, Gujarat State Disaster Management Authority, Government of Gujarat 7 Earthquake Engineering Lecture Notes, The University of Nottingham 2012, by: Dr Iman Hajirasouliha 8 Earthquake Engineering Lecture Notes, The Islamic University of Gaza 2018-2019, by: Prof. Samir M. Shihada	
Teaching Methods (Forms of Teaching):		Lectures, Presentation, Seminar, Project	
COURSE EVALUATION CRITERIA			
Method		Quantity	Percentage (%)
Seminar		1	5
Quiz		3	5
Project		1	10
Midterm Exam(s)		1	30

Final Exam	1	40
Total		100

Examinations: True-False, Fill in the Blanks, Short Answers

Extra Notes:

ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD

Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	18	3	54
Practical Hours	18	0	0
Final Exam	1	13	13
Seminar	1	3	3
Quiz	3	5	15
Project	1	20	20
Midterm Exam(s)	1	10	10
Total Workload			115
ECTS Credit (Total workload/25)			4.6

Peer review

Signature:

Name:

Lecturer

Signature:

Name:

Head of Department

Signature:

Name:

Dean