

TISHK INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING Department of CIVIL ENGINEERING, 2020-2021 Spring Course Information for CE 360 SUSTAINABILITY FOR CIVIL ENGINEERING					
Course Name:	SUSTAINABILITY FOR CIVIL ENGINEERING				
Code	Regular Semester	Theoretical	Practical	Credits	ECTS
CE 360	6	3	-	3	
Name of Lecturer(s)- Academic Title:	Barham Haydar - MSc				
Teaching Assistant:	Barham Haidar				
Course Language:	English				
Course Type:	Main				
Office Hours	8.30-10.30				
Contact Email:	barham.haydar@tiu.edu.iq				
	Tel:07705042603				
Teacher's academic profile:	MSc holder in construction materials				
Course Objectives:	<p>This course addresses the application of the sustainable development paradigm to the built environment. Sustainable development includes reducing the impacts of human activities on natural ecosystems and understanding the role these ecosystems have in the economy and on human welfare. It involves understanding the lessons that human society can learn from natural systems and how these lessons can help provide a good quality of life for the planet's population. This course will cover the fundamental concepts of sustainable development in the built environment; the environmental / resources issues and industrial / construction metabolism with examples. It also discusses environmental ethics and environmental justice; ecological / environmental economics including Life Cycle Costing; building assessment (frameworks) and ecolabels. Additionally, this course develops basic knowledge about energy systems, energy conservation and renewable energy; Life Cycle Assessment, embodied energy, and materials. Concepts such as New Urbanism, bioclimatic design principles, ecological concepts, passive design strategies and LEED criteria will be discussed. This course will use a mix of class lectures, guest lectures, videos, additional reading materials, and other approaches for instruction.</p>				
Course Description (Course overview):	<p>This course addresses the application of the sustainable development paradigm to the built environment. Sustainable development includes reducing the impacts of human activities on natural ecosystems and understanding the role these ecosystems have in the economy and on human welfare. It involves understanding the lessons that human society can learn from natural systems and how these lessons can help provide a good quality of life for the planet's population. This course will cover the fundamental concepts of sustainable development in the built environment; the environmental / resources issues and industrial / construction metabolism with examples. It also discusses environmental ethics and environmental justice; ecological / environmental economics including Life Cycle Costing; building assessment (frameworks) and ecolabels. Additionally, this course develops basic knowledge about energy systems, energy conservation and renewable energy; Life Cycle Assessment, embodied energy, and materials. Concepts such as New Urbanism, bioclimatic design principles, ecological concepts, passive design strategies and LEED criteria will be discussed. This course will use a mix of class lectures, guest lectures, videos, additional reading materials, and other approaches for instruction.</p>				
COURSE CONTENT					
Week	Hour	Date	Topic		
1	3	31/1-4/2/2021	Introduction		
2	3	7-11/2/2021	SDSs		
3	3	14-18/2/2021	Three pillars of sustainability		
4	3	21-25/2/2021	economical pillar of sustainability		
5	3	28/2-4/3/2021	economical pillar of sustainability		
6	3	7-11/3/2021	Life Cycle Assessment (LCA), Embodied Energy, Energy and Materials		

7	3	28/3-1/4/2021	Life Cycle Assessment (LCA), Embodied Energy, Energy and Materials
8	3	4-8/4/2021	Social Pillar of Sustainability
9	3	11-15/4/2021	Midterm Exam
10	3	18-22/4/2021	Midterm Exam
11	3	25-29/4/2021	Social Pillar of Sustainability
12	3	2-6/5/2021	Eco Materials
13	3	9-13/5/2021	LEED
14	3	16-20/5/2021	LEED
15	3	23-27/5/2021	Presentation
16	3	30/5-3/6/2021	Presentation
17	3	6-10/6/2021	Final Exam
18	3	13-17/6/2021	Final Exam
COURSE/STUDENT LEARNING OUTCOMES			
1	capable to design principles of sustainable construction, the interdisciplinarity of engineering interdisciplinary relationships in buildings and their interaction on the basis of sustainability.		
2	Evaluation of sustainable buildings and the basic information about certification systems.		
3	Understanding of water saving, energy saving, cost cycle and life cycle analysis in sustainable buildings.		
COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES (Blank : no contribution, I: Introduction, P: Proficient, 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.		P
3	Design an engineering system, component, or process to meet desired industrial needs.		P
4	Identify, formulate and solve complex engineering problems		I
5	Apply, in design and construction, the most modern design codes, standards and specifications such as; AISC, ACI, ASCE 7, IBC, etc.		P
6	Use the techniques, skills, and modern engineering tools, such as surveying instruments, and designing software that are necessary for engineering practices.		I
7	Apply knowledge and skills in construction project management and recognition of international standards and methodologies		P
8	Manage to work with multi-disciplinary teams and communicate effectively.		P
9	Identify the moral values that ought to guide the Civil Engineering profession and resolve the moral issues in the profession.		P
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		P
12	Identify the need and have the ability to engage in lifelong learning and knowledge of contemporary issues.		P
Prerequisites (Course Reading List and References):		Reading any books related to sustainability	
Student's obligation (Special Requirements):		bringing lecture notes in to the class	
Course Book/Textbook:		Sustainable Construction: Green Building Design and Delivery. Third Edition, Charles J. Kibert, New York: John Wiley & Sons, 2012. Working Toward Sustainability: Ethical Decision Making in a Technological World, CJ Kibert et al, New York: John Wiley & Sons, 2011	
Other Course Materials/References:		Sustainable Construction: Green Building Design and Delivery. Third Edition, Charles J. Kibert, New York: John Wiley & Sons, 2012. Working Toward Sustainability: Ethical Decision	

	Making in a Technological World, CJ Kibert et al, New York: John Wiley & Sons, 2011		
Teaching Methods (Forms of Teaching):	Lectures, Presentation, Seminar, Project, Assignments, Case Studies		
COURSE EVALUATION CRITERIA			
Method	Quantity	Percentage (%)	
Participation	1	5	
Homework	1	25	
Midterm Exam(s)	1	15	
Presentation	1	15	
Final Exam	1	40	
	Total	100	
Examinations: Essay Questions, True-False, Fill in the Blanks, 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	3	54
Practical Hours	18	0	0
Final Exam	1	6	6
Participation	1	36	36
Homework	1	13	13
Midterm Exam(s)	1	5	5
Presentation	1	8	8
Total Workload			122
ECTS Credit (Total workload/25)			4.88

Peer review

Signature:

Name:

Lecturer

Signature:

Name:

Head of Department

Signature:

Name:

Dean