Course Specification

(Bachelor)

Course Title:	Sustainability of Construction Projects
Course Code:	COE4411
Program:	Bachelor of Construction Engineering
Department:	Civil and Environmental Engineering Department
College:	College of Engineering and Computing in Al-Qunfudhah
Institution:	Umm Al-Qura University
Version:	4th
Last Revision Date:	14 January 2025

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☐College	Department	☐Track	Others
B.	Required		☒ Elective		
3. Level/year at which this course is offered: (Level 9-10 / Year 5)					
4. Course General Description:					
This course delivers sustainability as a theory and its applicability to the construction industry. This includes sustainable building delivery system as an emerging paradigm in the design, construction, and operation of buildings. Explore examples of best practices and latest technologies from around the world including benefits and challenges. In addition, the course will discuss modern sustainability certifications.					
5. Pre-requirements for this course (if any)**:**					
Building Construction COE3402					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
The main purpose of this course is to understand the concept of sustainable development or sustainability in the built environment, and its current application in the construction industry.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	**3 credit hours**	**100%**
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Understand the concept of sustainable development or sustainability in the built environment.	K3	Interactive learning Self-directed learning	Midterm Exam, Final Exam
2.0	Skills			
2.1	Identify the driving factors behind Lean Construction and Lean Construction practices implemented on projects.	S1	Interactive learning Self-directed learning	Midterm Exam, Final Exam
2.2	Analyze sustainable construction practices, specifically as they relate to design decisions and construction practices	S2		
2.3	Investigate the benefits of Green Building rating systems and be familiar with the USGBC LEED assessment system	S2		
3.0	Values, autonomy, and responsibility			
3.1	Recognize the social, environmental and economic impacts of the built environment and how sustainability can reduce these impacts	V1	Interactive learning Self-directed learning	Midterm Exam, Final Exam

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction: Sustainability in the Built Environment	6
2.	Ethics of Sustainability	6
3.	Ecological / Environmental Economics and Life Cycle Costing (LCC)	6
4.	Building Assessment and Ecolabels	6
5.	Midterm Exam	3
6.	LEED Building Design and Rating System	6
7.	The Sustainable Site and Landscape	6
8.	Construction operations for green building implementation	6
	Total	45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	4, 6, 12	15%
2.	Homework	3, 9, 13	15%
3.	Midterm Exam	8	30%
4.	Final Exam	16 or 17	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Kibert, C. (2022) Sustainable Construction. 5th edn. Wiley.
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Classroom with minimum capacity of 30 students**
Technology equipment (projector, smart board, software)	**Projector, whiteboard**
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Lecturer / Students	Direct / Indirect (Grades, surveys)
Effectiveness of Students assessment	Faculty	Indirect (Barriers to understand successor course)
Quality of learning resources	Lecturer	Direct (Grades)
The extent to which CLOs have been achieved	Lecturer / Faculty	Direct (Grades)
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**Civil and Environmental Engineering Department Council in Al-Qunfudah**
REFERENCE NO.	**The fifteenth session of the academic year 1446**
DATE	**01/05/2025**