Course Specification

(Bachelor)

Course Title:	Green Buildings
Course Code:	COE4605
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:	1st
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 X / Year X)					
4. Course General Description:					
Providing a complete introduction to the design and construction of high-performance green buildings. By providing a thorough grounding on the subject, this course encourages the students to realize the ecological and economic benefits of green building and gain the knowledge needed to test any of the myriad decisions that have to be made in design and construction from materials selection to considering the use of natural systems for wastewater processing.					
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 objective is to equip students with a comprehensive understanding of sustainable building design, construction, and operation principles, focusing on energy efficiency, resource conservation, environmental impact reduction, and the application of green building standards and certifications for creating healthier, eco-friendly, and cost-effective structures.					

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 fundamental principles of sustainable building design and construction.	K1	Interactive learning Self-directed learning	Midterm Exam, Final Exam
1.2	Identify green building standards, certifications (e.g., LEED, BREEAM), and regulatory frameworks.	K1		
1.3	Recognize the importance of energy efficiency, water conservation, and material sustainability in green buildings.	K2		
1.4	Describe lifecycle assessment and its role in sustainable construction	K3		
2.0	Skills			
2.1	Analyze and evaluate green building designs using sustainability assessment tools.	S1	Interactive learning Self-directed learning	Midterm Exam, Final Exam

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.2	Develop strategies for improving building energy efficiency and indoor environmental quality.	S2		
2.3	Conduct a sustainability audit and suggest improvements for existing structures.	S4		
3.0	**Values, autonomy, and responsibility**			
3.1	Adopt ethical decision-making in sustainable construction practice.	V1	Interactive learning Self-directed learning	Midterm Exam, Final Exam
3.2	Realize the long-term benefits of sustainable practices in communities and industries.	V1		

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Green Buildings and Sustainable Development	3
2.	Energy Efficiency in Building Design (Green Buildings context)	6
3.	Water Conservation and Management in Green Buildings	3
4.	Sustainable Materials and Resources (Embodied Energy)	6
5.	Indoor Environmental Quality and Sick building syndrome (SBS)	3
6.	Midterm Exam	3
7.	Green Building Standards and Certifications (LEED, BREEAM, WELL, etc.)	6
8.	Waste Management and Construction Practices in Green Buildings	6
9.	Building Performance Monitoring and Maintenance	6
10.	Case Studies and Emerging Trends in Green Building	3
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.J. (2021) Sustainable Construction: Green Building Design and Delivery. 5th edn. Hoboken, NJ: Wiley
Supportive References	U.S. Green Building Council (USGBC) (n.d.) USGBC Course Catalog.
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**