Course Specification

(Bachelor)

Course Title:	Project Cost Estimating
Course Code:	COE4403
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:	15th January 2025

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (2)					
2. Course type					
A.	☐University	☐ College	☒ Department	☐Track	Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Level 7/year 4)					
4. Course General Description:					
This course provides students with a comprehensive understanding of cost estimating in the construction industry, a critical component of construction project management. It equips students with the knowledge and skills to develop accurate and detailed cost estimates, essential for budgeting, bidding, and financial management of construction projects. Topics include understanding construction documents, using estimating software, and applying various estimating techniques to different project phases. The course combines theoretical knowledge with practical applications, preparing students for real-world challenges in construction engineering.					
5. Pre-requirements for this course (if any)**:**					
Building Construction (COE3402) ***and*** Construction Project Management (COE3401)					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
1. To understand the fundamental principles and practices of cost estimating in construction. 2. To analyze construction documents and drawings for accurate quantity takeoffs. 3. To develop skills in preparing detailed and reliable cost estimates. 4. To learn the processes involved in bidding and tendering for construction projects. 5. To familiarize students with different types of estimates used at various stages					

of a project.
6. To introduce the use of technology and software tools in cost estimating.
7. To evaluate and manage cost risks and uncertainties in construction projects.
8. To understand the economic impact and cost control methods in construction.
9. To prepare students to communicate and present cost estimates effectively to stakeholders.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	**2 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**	**30**
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		**30**

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	**Recall, define, and describe construction engineering**	**K1**	**Interactive learning Self-directed learning**	**Midterm Exam, Final Exam, Homework, and Quizes**

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	concepts, principles, theories, and procedures.			
1.2				
...				
2.0	**Skills**			
2.1	Apply engineering and scientific principles to identify, analyze, and solve complex construction engineering problems.	S1	Interactive learning Self-directed learning	Midterm Exam, Final Exam, Homework, and Quizes
2.2	Utilize critical thinking skills to analyze complex construction engineering issues and develop innovative, context-appropriate solutions that address current challenges in the field.	S2	Interactive learning Self-directed learning	Midterm Exam, Final Exam, Homework, and Quizes
...				
3.0	**Values, autonomy, and responsibility**			
3.1				
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Cost Estimating in Construction	2
2.	Types of Estimates and Estimating Techniques	4

3.	Construction Documents and Quantity Takeoff	6
4.	Pricing and Costing	6
5.	Bid Preparation and Tendering Process	2
6.	Mid Term Exam	2
7.	Use of Estimating Software and Technology	2
8.	Risk Analysis and Management in Estimating	2
9.	Ethical Considerations and Communication in Estimating	2
10.	Project Monitoring, Evaluation, and Closure	2
Total		30

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	Kannapel, L.P., 2020. *Construction Cost Estimating: Process and Practices*. 1st ed. Hoboken: Wiley.
Supportive References	Peurifoy, R.L., Oberlender, G.D. and Vorster, M.C., 2020. *Estimating Construction Costs*. 6th ed. New York: McGraw-Hill.
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

Items	Resources
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**