Course Specification

(Bachelor)

Course Title:	Environmental Engineering
Course Code:	COE4603
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:	2nd
Last Revision Date:	March 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: (9 or 10/5)					
4. Course General Description:					
This course presents definitions of the environmental engineering concepts, such as, pollution of air, water, soil, noise, light and vibration. Solid waste and solid waste management, pollution prevention, clean production in the industries, treatment technologies, environmental management, sustainability and environmental impact assessment.					
5. Pre-requirements for this course (if any)**:**					
Sanitary Engineering (COE4602)					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s):					
To provide students with an understanding and enable thinking skills of technical issues and management of Introduction to Environmental Engineering					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100 %
2	E-learning	None	None
3	Hybrid • Traditional classroom • E-learning	None	None
4	Distance learning	None	

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	None
3.	**Field**	None
4.	**Tutorial**	None
5.	**Others (specify)**	None
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	Recognize the basic concepts of environmental engineering, types of pollutants (Water and air pollution) and solid waste, and methods to reduction their impacts	**K1**	Lecture	Assignment, Quiz, Midterm and final exam
1.2	Recognize methods and concepts of an environmental impact assessment	**K1**	Lecture	Assignment, Quiz, Midterm and final exam
2.0	**Skills**			
2.1	Classify the environmental variables and their effects	**S1**	Lecture	Assignment, Quiz, Midterm and final exam
2.2	Analyze and assessment of different environmental cases for selection suitable	**S1**	Lecture	Assignment, Quiz, Midterm and final exam

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	decision making			
3.0	**Values, autonomy, and responsibility**			
3.1	Demonstrate how to work effectively in diverse groups and professional, ethical.	**V1**	Lecture	Assignment, Quiz, Midterm and final exam

C. Course Content

No	List of Topics	Contact Hours
1.	Course Description and Introduction to Environmental Engineering	**3**
2.	Environmental engineering concepts and its interests (such as pollution of air, water, soil, noise, light and vibration, and solid waste	**9**
3.	water quality and Water purification systems	**12**
4.	concepts and designing units of Wastewater transportation, treatment and disposal systems	**6**
5.	Solid waste management	**6**
6.	Environmental management and environmental impact assessment	**6**
7.	Quizzes and Midterm Exam	**3**
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	**2, 5, 8, 11, 14**	**15%**
2.	Quizzes	**4, 11, 14**	**15%**
3.	Midterm exam	**7 or 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	Reible, Danny D. Fundamentals of environmental engineering. CRC Press, 2017.

Supportive References	Rangwala, K. S., and Rangwala, P. S. (2009). "Water supply and sanitary engineering " Twenty 3rd edition. Weiner, Ruth, Robin Matthews, and P. Aarne Vesilind. Environmental engineering. Butterworth-Heinemann, 2003.
Electronic Materials	None
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Equipped Classroom
Technology equipment (projector, smart board, software)	Blackboard, Data show, Smart Board
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	**Student** **Instructor**	**Indirect** **Direct**
Effectiveness of Students assessment	**Student** **Instructor**	**Indirect** **Direct**
Quality of learning resources	**Student** **Instructor**	**Indirect**
The extent to which CLOs have been achieved	**Instructor**	**Direct**
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