T-104
2022

Course Specification

Course Title:	**ENVIRONMENTAL POLLUTION**
Course Code:	**231CHET**
Program:	**Chemical Engineering Technology**
Department:	**Chemical Engineering Technology**
College:	**College of Applied Industrial Technology (CAIT)**
Institution:	**Jazan University**
Version:	**T-104 2022**
Last Revision Date:	**01 March 2024**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	3h				
2. Course type					
a.	University ☐	College ☐	Department☒	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered: VI/2year	IV/2Year				
4. Course general Description This course introduces the student to the main aspects of water and air pollution and solid waste. Sources, means of measurement and treatment, and control processes, as well as recycling and disposal procedures are studied. The course includes the study of selected topics of social and global concern related to the subject of environmental pollution. Laboratory activities concentrate mainly on determination of pollutant levels in water and wastewater.					
5. Pre-requirements for this course (if any): No					
6. Co- requirements for this course (if any): No					
7. Course Main Objective(s) To introduce the modern ways of environment concerns experiences in order to feed the knowledge to the graduate engineers about the dangers of environmental pollution problems. (1) become familiar with the scope, methodology, and application of modern chemistry and learn to appreciate its ability to explain the physical world. (2) Understand that all matter consists of atoms, and that the limitless variety observed around us stems from the ways that these atoms bond with one another. (3) Learn problem solving and learning to interpret the data, to employ valid and efficient methods of analysis, and to assess whether or not the results of calculations are reasonable. (4) Learn the principles of pollution prevention. (5) Generalize the analytical and quantitative skills gained in this course and to apply them in more advanced courses and throughout one's career.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	48	100
2.	E-learning		

No	Mode of Instruction	Contact Hours	Percentage
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	24
2.	Laboratory/Studio	24
3.	Field	--
4.	Tutorial	--
5.	Others (specify)	--
	Total	48

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Explain the basic concept and the environmental engineering-based problems.	$K_{1.2}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams
1.2				
2.0	Skills			
2.1	Differentiate the main problems related to pollution in water, air and soil that affect the whole environment	$S_{1.1}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams
2.2	Explain the series of steps taken to solve the environmental problems	$S_{2.2}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams
2.3	Compile a precise decision on choosing the right solution or alternative solution related to	$S_{3.2}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	the environmental pollution-based problems.			
2.4	Prepare the handling of hazardous chemical with safety	$S_{4.2}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams
…				
3.0	Values, autonomy, and responsibility			
3.1	An ability to identify the interpersonal skills and managed teamwork.	$V_{1.1}$	Assignments/Lab work Marks are given according to the participation in classroom, Lab work and Timely submission of assignments	
3.2	An ability to engage in self-directed continuing professional development	$V_{1.2}$		

C. Course Content

No	List of Topics	Contact Hours
1. 1	Introduction to engineering polluting problems	2
2. 2	Water pollution: sources, pollutants	2
3	Water pollution: effect, control	2
4	Air pollution: sources, pollutants,	2
5	Air pollution: effect, control	2
6	Noise pollution: sources, pollutants,	2
7	Noise pollution: effect, control	2
8	Manufacturing operations	Self-study report
9	Handlings of Chemicals	2
10	Introduction of Pollution prevention	2
11	International regulations for pollution prevention	2
12	Review of theoretical content	2
Total		22

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1	Week 4	10%
2.	Midterm Exam	Week 6	20%
3.	Quiz-2	Week 8	10%
4.	Lab Exam	Week 11	20%
5.	Final Term Exam	As scheduled	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	List Essential References Materials (Journals, Reports, etc.) provided during lectures
Supportive References	Pollution prevention: Fundamentals and Practice by Paul L. Bishop Pollution A to Z by Richard M. Stapleton
Electronic Materials	Not utilized
Other Learning Materials	Not utilized

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• Laboratory with required equipment and with a lab instructor • Appropriate Table and Chairs in lab • Proper internet/Wi-Fi facility must be available in classroom as well in lab
Technology equipment (Projector, smart board, software)	• Computer with data show, software
Other equipment (depending on the nature of the specialty)	• Not utilized

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Faculty	Direct
Effectiveness of student's assessment	Students	Indirect
Quality of learning resources	Program leader	Indirect
The extent to which CLOs have been achieved	Peer reviewer	Indirect
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	CHEMICAL ENGINEERING TECHNOLOGY
REFERENCE NO.	CAITCET24012
DATE	modified on: 01/03/2024