هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	**Methods of Chemical Analysis**
Course Code:	**113 CHET**
Program:	**Chemical engineering Technology**
Department:	**Chemical engineering Technology**
College:	**College of Applied Industrial Technology**
Institution:	**Jazan University**
Version:	**V2022**
Last Revision Date:	**7 Dec 2022**

Table of Contents:

A. General information about the course:

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: L2/Y1					
4. Course general Description This course concentrates on the various chemical and instrumental techniques used in chemical and applied industries. The course focuses on macro analysis methods (volumetric and gravimetric analysis) and instrumental techniques like spectrophotometry (UV-VIS, IR, X-Ray, AAS) and chromatography. Laboratory experiments reinforce the theory.					
5. Pre-requirements for this course (if any): 112 CHET					
6. Co- requirements for this course (if any):					
7. Course Main Objective(s) The objectives of this course are: (1) Providing students with an opportunity to identify different types of analytical instruments in their respective laboratories. (2) Provide principles and operating conditions of the Chemical Instruments among others, introduce students to the practical use of Chemical Instruments for chemical analysis.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	26	100
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	13
2.	Laboratory/Studio	26
3.	Field	

4.	Tutorial	
5.	Others (specify)	
	Total	39

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	Define the theoretical principles underpinning the instrumental techniques and their applications;	K1.3	Lecture, tutorial, active learning	Quizzes, Assignments, exams, and SSR
1.2				
…				
2.0	Skills			
2.1	Compose number of protons NMR signals expected from a compound given its structure;	$S_{1.3}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams, and SSR
2.2	Adapt a variety of instrumental techniques for the analysis of samples in various formats and from various matrices;	$S_{2.2}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams, and SSR
2.3	Assess the appropriateness of the instrumental methods for the analysis of samples in various formats and from complex matrices;	$S_{4.3}$	Lecture, tutorial, active learning	Quizzes, Assignments, exams, and SSR
3.0	Values, autonomy, and responsibility			
3.1	Articulate personal responses to a literary work they have selected independently	$V_{1.2}$	Assignments	Marks is given according to participation in classroom

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
3.2	Select the appropriate information sources in an analytical laboratory setting;	$V_{2.2}$	Assignments	Marks is given according to participation in classroom
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Chemical Analysis	**1**
2.	Common Methods of Chemical Analysis	**1**
3.	Classic Vs Instrumental Analysis	**1**
4.	Quiz 1	**1**
5.	Mid Term	**1**
6.	Infrared Spectroscopy	**3**
7.	Proton NMR Spectroscopy	**3**
8.	Quiz 2	**1**
Total		**12**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	Week 2 till Week 12	20%
2.	Laboratory work	All weeks	10%
3.	Midterm	Week 7	20%
4.	Final Term Exam	As scheduled	40%
5	SSR	Week 10	10%

*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	Lecture notes and hardcopies of some sections from "*Textbooks* Francis Rouessac and Annick Rouessac, **Chemical Analysis- Modern Instrumentation Methods and Techniques, 2nd edition**, Wiley 2007".
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms and laboratories
Technology equipment (projector, smart board, software)	Computer
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	Institution	Online Direct Survey
Effectiveness of students assessment	Course Coordinator	Indirect
Quality of learning resources	Course Coordinator	Indirect
The extent to which CLOs have been achieved	Course Coordinator	Excel Sheet-Direct
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	17/01/2024