



Course Specifications

20221

Course Title:	Methods of Chemical Analysis
Course Code:	213 CHET
Program:	Chemical Engineering Technology
Department:	Chemical Engineering Technology
College:	College of Applied Industrial Technology
Institution:	Jazan University

Table of Contents

A. Course Identification.....	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes.....	3
1. Course Description	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	4
C. Course Content.....	4
D. Teaching and Assessment.....	5
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	5
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support.....	5
F. Learning Resources and Facilities	6
1.Learning Resources	6
2. Facilities Required	6
G. Course Quality Evaluation.....	6
H. Specification Approval Data.....	7

A. Course Identification

1. Credit hours: 3h
2. Course type a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 5 th level – 3 rd year
4. Prerequisites for this course (if any): 112 CHET
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	50
2	Blended		
3	E-learning		
4	Distance learning		
5	Other	30	50

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description <p>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.</p>
2. Course Main Objective <p>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.</p>



3. Course Learning Outcomes

K1	S1	S2	S3	S4	S5	V1	V2	
A	A	A		A		A	P	
3	3	3	NA	3	NA	3	2	

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Define the theoretical principles underpinning the instrumental techniques and their applications;	K _{1.3}
1.2		
1.3		
1...		
2	Skills :	
2.1	Compose number of protons NMR signals expected from a compound given its structure;	S _{1.3}
2.2	Adapt a variety of instrumental techniques for the analysis of samples in various formats and from various matrices;	S _{2.2}
2.3	Assess the appropriateness of the instrumental methods for the analysis of samples in various formats and from complex matrices;	S _{4.3}
2...		
3	Values:	
3.1	Articulate personal responses to a literary work they have selected independently	V _{1.2}
3.2	Select the appropriate information sources in an analytical laboratory setting;	V _{2.2}
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to basic of chemical analysis, terminologies, units, notations, instruments, and uses. Illustrate the objectives of the course for the students.	8
2	Classification of chemical analysis	6
3	Quantitation in Instrumental Analysis	6
4	UV Spec	8
5	Infrared Spec	12
6	HNMR	12
7	Practice	4
Total		60



D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Define the theoretical principles underpinning the instrumental techniques and their applications;	Lecture, tutorial, active learning	Quizzes, Assignments, exams
1.2			
...			
2.0	Skills		
2.1	Compose number of protons NMR signals expected from a compound given its structure;	Lecture, tutorial, active learning	Quizzes, Assignments, exams
2.2	Adapt a variety of instrumental techniques for the analysis of samples in various formats and from various matrices;		
...	Assess the appropriateness of the instrumental methods for the analysis of samples in various formats and from complex matrices;		
3.0	Values		
3.1	Articulate personal responses to a literary work they have selected independently	Assignments	Marks is given according to participation in classroom
3.2	Select safety and competent in an analytical laboratory setting;		
...			

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2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes and Assignments	Week 2 till Week 12	25%
2	Laboratory work	All weeks	5%
3	Midterm	Week 7	20%
4	Final Term Exam	As scheduled	50%
5			
6			
7			
8			

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Office hours are specified and instructors can be reached through emails or WhatsApp.



F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> Classroom policy Lecture notes and hardcopies of some sections from “<i>Textbooks</i> Francis Rouessac and Annick Rouessac, Chemical Analysis- Modern Instrumentation Methods and Techniques, 2nd edition, Wiley 2007”.
Essential References Materials	<ul style="list-style-type: none"> NA
Electronic Materials	<ul style="list-style-type: none"> Not utilized
Other Learning Materials	<ul style="list-style-type: none"> Not utilized

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> Classrooms and laboratories
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> Computer
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> Not utilized

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Confidential student Course Evaluation Survey	Institution	Online Direct Survey
End of semester CLO	Course Coordinator	Direct Survey

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)



H. Specification Approval Data

Council / Committee	Chemical Engineering Technology
Reference No.	06/1442/43
Date	24/01/2021

