هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	Practical Inorganic Chemistry
Course Code:	CHEM327-2
Program:	Bachelor of Science in Chemistry
Department:	Department of Physical Sciences
College:	College of Science
Institution:	Jazan University
Version:	TP-153 (2024)
Last Revision Date:	31/1/2024

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A. General information about the course:

1. Course Identification

1. Credit hours: (3 hrs.)

2. Course type

A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐ Elective		

3. Level/year at which this course is offered: (5th Level--- 3rd Year.)

4. Course general Description:

Course title	Course code	Contact Hours			Credit Hours	Year	Level	Prerequisite	Corequisite
		Lec	Tut	Lab					
Inorganic Chemistry Lab	CHEM327-2	0	0	4	2	3rd	5th	-	CHEM326-3

This course aims to train the students and acquire them the necessary skills to prepare the compounds and complexes of transition elements and how to identify them and their properties using traditional and physico-chemical analytical methods.

5. Pre-requirements for this course (if any)**:**

None

6. Co-requisites for this course (if any)**:**

CHEM326-3

7. Course Main Objective(s):

1. **To deal with chemicals in a correct and safe way.**
2. **Preparing a number of transition metals compounds and complexes.**
3. **To Learn how to prepare the samples of different instruments.**
4. **Using different devices and traditional methods to identify the composition and properties of the prepared compounds.**
5. **Ability to analyze and interpret the obtained results.**

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	$(4 \times 15) = 60$	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**	
2.	**Laboratory/Studio**	60
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		60

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;** *Upon completion of the course, students are able to:*			
1.1	***Demonstrate abroad knowledge about the methods used to prepare transition metal compounds and complexes and connect between the theoretical knowledge and experiments (I)***	**K(1)**	***Laboratory discussion***	***Objective Questions/ lab report rubric***
1.2	***Describe investigation and analysis of the prepared compounds by traditional and instrumental methods. (I)***	**K(2)**	***Laboratory discussion***	***Objective questions, Essay questions/ lab report rubric***
2.0	**Skills;** *Upon completion of the course, students are able to:*			
2.1	***Solve and interpret problems related to the properties and measurements of transition elements compounds (I)***	S(1)	***lecture / Open discussion in Lab***	***Essay questions, Solving problems***

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	*Apply their experimental basics and skills to use laboratory equipment, modern instrumentation, and classical techniques for carrying out experiments to prepare and analyze of transition elements' compounds and to write a report representing the scientific data. (I)*	S(2)	*Lab work, group work*	*Objective question, Essay question, Practical Exam, lab report rubric*
2.3	*Use a variety of instruments to efficiently analyze transition elements compounds. (I)*	S(3)	*Lab work, group work*	*Objective question, Essay question, Practical Exam, lab report rubric*
2.4	*Examine his material and lab safety background to follow proper procedures and regulations for safe handling and use of chemicals. (I)*	S(4)	*lecture / Open discussion in Lab*	*Safety exam*
3.0	**Values, autonomy, and responsibility;** *Upon completion of the course, students are able to:*			
3.1	*Work in groups and teams in cooperation with other colleagues. (I)*	V(1)	*lab demonstrations / whole group and small group discussion*	*Practical group work Rubric*

C. Course Content

No	List of Topics	Contact Hours
1.	Safety and regulations	4
2.	Preparation of nickel ammonium sulphate and Preparation of copper ammonium sulphate double salts	4
3.	Analysis of nickel ammonium sulphate 1- Determination of nickel as the dimethylglyoximate	4
4.	Analysis of nickel ammonium sulphate 2- Determination of sulphate as barium sulphate	4
5.	Analysis of copper ammonium sulphate 1- Determination of copper iodometrically	4
6.	Analysis of copper ammonium sulphate 2- Determination of sulphate as barium sulphate	4
7.	Preparation and characterization of potassium trisoxalatochromate (III) trihydrate	8

8.	Preparation and characterization of hexaminenickel (II) chloride	8
9.	Preparation and characterization tetraamminecopper (II) sulfate monohydrate	8
10.	Preparing and characterization of hexamminecobalt (II) chloride	8
11.	Final Exam	4
Total		$4 \times 15w = 60$

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	*Periodic Exams*	*During Semester*	*25%*
2.	*Lab work*	*During Semester*	*35%*
6.	*Final Exam*	*16-17*	*40%*
	Total		*100%*

*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	• Synthesis and characterization of Inorganic Compounds, W.L. Jolly, Edition 1, Waveland Press, 1991.
Supportive References	• العناصر الانتقالية الأساسية وكيمياء التناسق، د. حسين محمد عبد الفتاح و د. سمير أبو القاسم عبد اللطيف – 2012 • Synthesis And Technique in Inorganic Chemistry A Laboratory Manual, G. S. Girolami, T.B. Rauchfuss, R. J. Angelici, 3rd ed., 1999, University Science Books.
Electronic Materials	Some course contents and materials are posted on Black board sites
Other Learning Materials	http://www.chemguide.co.uk/inorganic/transition/features.html http://www.chem.iitb.ac.in/~rmv/ch102/ic3.pdf

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	lab

Items	Resources
Technology equipment (projector, smart board, software)	Data show, projector
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	Likert-type Survey CES) Indirect
Effectiveness of Students' assessment	Instructor & Course coordinator	Class room evaluation (direct & indirect
Quality of learning resources	Program coordinator	Indirect
The extent to which CLOs have been achieved	Assessment committee	Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Physical Sciences Department Council
REFERENCE NO.	Meeting (3)
DATE	12/03/2024 -02/09/1445