Course Specification
(Bachelor)

Course Title:	Graduation Project
Course Code:	491CHEM-2
Program:	Bachelor of Science in Chemistry
Department:	Physical sciences
College:	College of Science
Institution:	Jazan University (JU)
Version:	TP153 2024
Last Revision Date:	5/5/2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (2h)

2. Course type

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

3. Level/year at which this course is offered: (Level 7/Year 4)

4. Course general Description:

Course Title	Course Number	Contact Hours		Credit Units	Year	Level	Pre-requisite
		Lec.	Prac.				
Graduation project	***491CHEM2***	***1***	***2***	***2***	***4***	***7***	***Department Approval.***

The course of Graduation Project aims to give the students the opportunities to Choose, Conduct Literature Survey Conduct Survey of Materials and Methods, Conduct Laboratory and/or Field Work, Collect Experimental and/or Field Data, Express Experimental and/or Field Data, Write Scientific Paper, Write Results, Discuss Results and Present Thesis for Graduation Research Project and Viva.

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

None

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

None

7. Course Main Objective(s):

The course of Graduation Project aims to give the students the opportunities to:
Conduct, Express and Discuss Laboratory and/or Field Work.
Discuss Results and Write Scientific Paper.
Present Thesis for Graduation Research Project and Viva.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	15	100 %

No	Mode of Instruction	Contact Hours	Percentage
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**	15
2.	**Laboratory/Studio**	31
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

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, student will be able to)			
1.1	***Demonstrate a broad understanding and critical view of key theories, concepts, and terms in the field of research. (M)***	K (1.1)	***Oral discussion***	***Oral discussion***
1.2	***Describe correctly Chemical phenomena using chemical principles and scientific reasoning (M)***	K(1.2)	Lecture group work discussion	***Oral discussion***
2.0	**Skills**; (Upon completion of the course, student will be able to)			
2.1	***Demonstrate the ability to think critically, numerical, and statistical, and logical analysis, and to use graphs and diagrams***	S(2.1)	lecture group work discussion	***Oral discussion***

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	to solve problems (in the research topic) (M)			
2.2	***Apply their experimental basics and skills to know laboratory equipment, modern instrumentation, and classical techniques used related to his research topic. (M)***	S(2.2)	• *lecture* • *Seminars* • *individual presentation* *case studies*	***Oral discussion***
2.3	***Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals. (M)***	S(2.3)	• *lecture* • *Seminars* • *individual presentation* *case studies*	***MCQ***
2.4	***make effective use of communication, and online technology about chemistry topics in order to improve their basic knowledge in writing (report and paper/ poster) with a good verbal and clear scientific language. (M)***	S(2.4)	• ***lecture*** • ***Seminars*** • ***individual presentation case***	***Oral discussion***
3.0	**Values, autonomy, and responsibility**; (Upon completion of the course, student will be able to)			
3.1	***Act with integrity and good ethics in chemistry profession and their obligation to society. (M)***	V(3.2)	Research activities	***Plagiarism Detection***

C. Course Content

No	List of Topics	Contact Hours
1.	***Describe chemical phenomena correctly using chemical principles and scientific reasoning.***	3
2.	***Demonstrate the ability to think critically, numerically, statistically, logically, and use graphs and charts to solve problems (in the research topic)***	3
3.	***Apply their experimental basics and skills to know laboratory equipment, modern instrumentation, and classical techniques used related to his research topic.***	3
4.	***Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals.***	3
5.	***make effective use of communication, and online technology about chemistry topics in order to improve their basic knowledge in writing (report and paper/ poster) with a good verbal and clear scientific language.***	2

6.	*Student response to supervisor's instructions during project preparation while adhering to ethical standards.*	1
7	*Experimental part*	30
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	*Demonstrate a broad understanding of key theories, concepts, and terms in the field of research.*	*2-10*	*5*
2.	*Describe chemical phenomena correctly using chemical principles and scientific reasoning.*	*2-10*	*5*
3.	*Demonstrate the ability to think critically, numerically, statistically, logically, and use graphs and charts to solve problems (in the research topic)*	*2-10*	*30*
4.	*Apply their experimental basics and skills to know laboratory equipment, modern instrumentation, and classical techniques used related to his research topic.*	*2-10*	*15*
5.	*Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals.*	*2-10*	*10*
6.	*make effective use of communication, and online technology about chemistry topics in order to improve their basic knowledge in writing (report and paper/ poster) with a good verbal and clear scientific language.*	*2-10*	*20*
7.	*Student response to supervisor's instructions during project preparation while adhering to ethical standards.*	*2-10*	*10*
8.	*The student's commitment to the ethical standards of writing during the preparation of the research*	*2-10*	*5*

*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	*To be determined by supervisor from available sources*
Supportive References	*To be determined by supervisor from available sources*
Electronic Materials	*The Purpose and Value of Scientific Research,* *https://study.com/academy/lesson/what-is-scientific-research.html* *Types of Scientific Research, https://innspub.net › types-of-scientific-research* *What is Scientific Research and How Can it be Done,* *https://www.academia.edu/40888930/What_is_Scientific_Research_and_How_Can_it_be_Done*

Other Learning Materials	Platform connecting researchers with protocols and methods. Springer Nature Experiments

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	***1 Lecture room.***
Technology equipment (projector, smart board, software)	***Smart board, Data show, Black board, internet***
Other equipment (depending on the nature of the specialty)	***Saudi Digital Library***

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	Classroom 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 Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Physical Sciences Department Council
REFERENCE NO.	Psci2415
DATE	28/03/1446 Corresponding to 1 / 10 /2024

H. Attachments

1- Practical Work

To be determined by the supervisor depending on the title of project and availability in the department .....etc.

2- Blue Print

Course Name	Graduation Project
Course Code	**491CHEM2-**

PLOs	K1	K2	S1	S2	S3	S4	V1	V2
CLOs	1.1	1.2	2.1	2.2	2.3	2.4	3.1	3.2
Marks	5	5	30	15	10	20	-	15

Learning Domain	PLOs	CLOs	Assessment Type	Assessment Tool	No of Questions	Marks of the Assessment	Weight of the Assessment
Knowledge & understanding	K1	1.1 (5M)	Theoretical discussion	Oral discussion		5	5
	K2	1.2 (5M)	Theoretical discussion	Oral discussion		5	5
Skills	S1	2.1 (30M)	Theoretical discussion	Oral discussion		10	10
			Viva discussion	Oral discussion		20	20
	S2	2.2 (15M)	Practical evaluation	Oral discussion		15	15
	S3	2.3 (10M)	Safety Quiz	MCQ		10	10
	S4	2.4 (20M)	Thesis discussion	Oral discussion		20	20
Values, Autonomy and Responsibility	V2	3.2 (15M)	Ethics of scientific research	Plagiarism Detection (Viva evaluation)		10	10
				Plagiarism Detection		5	5
TOTAL							100