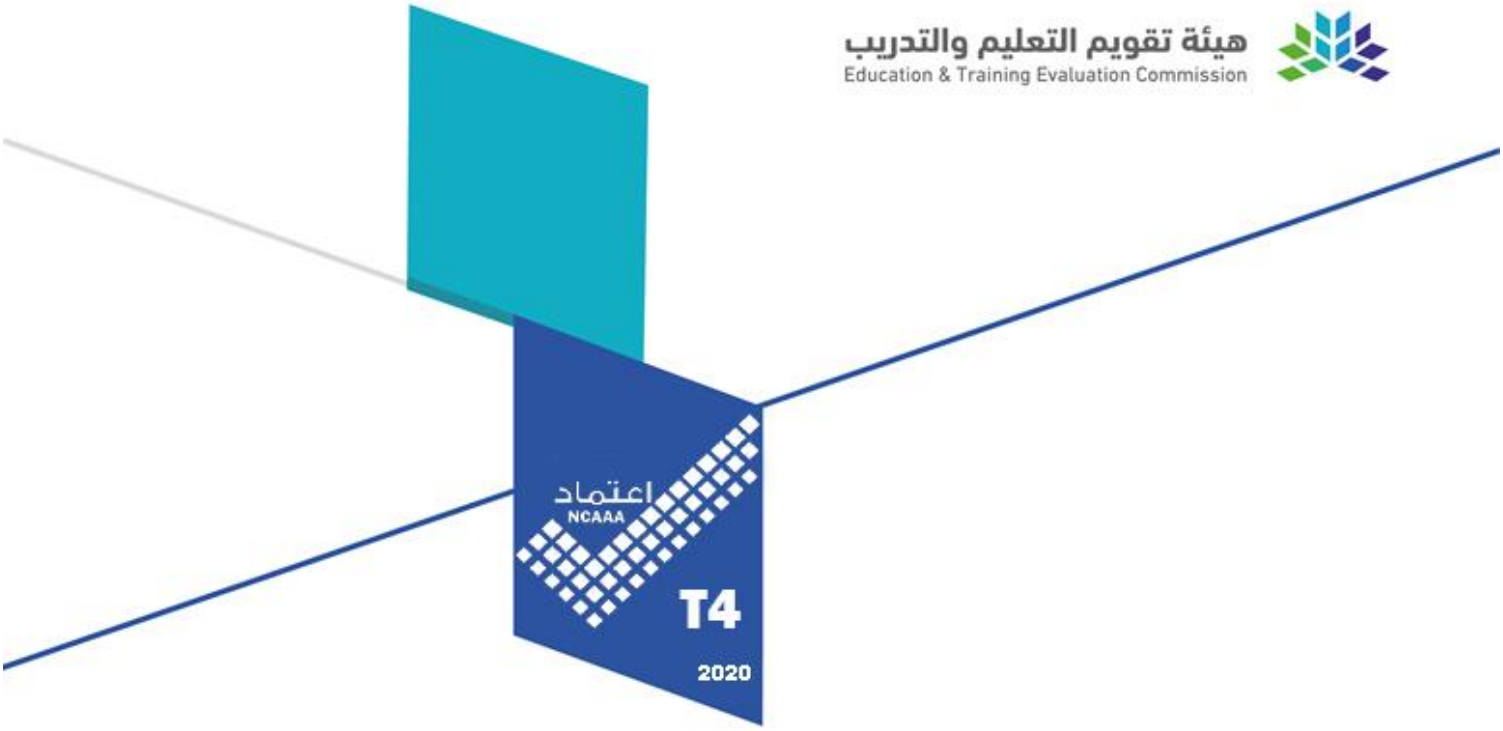
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Graduation Project
Course Code:	**CHEM 491**
Program:	**Bachelor in Chemistry**
Department:	**Chemistry**
College:	**Chemistry of Science**
Institution:	**Jazan University (JU)**

Table of Contents

A. Course Identification

1. Credit hours: **2h** **Workload: 110.8** **ECTS: 4.0**	
2. Course type	
a. University ☐ College ☐ Department ☑ Others ☐	
b. Required ☑ Elective ☐	
3. Level/year at which this course is offered:	
4. Pre-requisites for this course (if any)**:**	
Department Approval	
5. Co-requisites for this course (if any)**:**	
None	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom & LAB**	*15* *30*	*100%*
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	*15*
2	**Laboratory/Studio**	*30*
3	**Tutorial**	
4	**Others** (specify)	
	Total	*45*

B. Course Objectives and Learning Outcomes

Course Title	Course Number	Contact Hours		Credit Units	Year	Level	Pre-requisite	Co-request
		Lec.	Prac.					
Graduation project	*CHEM 491*	*1*	*1*	*2*	*Four Year*	*Seventh Level*	*Department Approval*	*none*

1. Course Description

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.

2. Course Objective

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.

3. Course Main Objective
The course aims expand the student's knowledge of chemistry research in a research specialization chosen by the student. This will include understanding the process through which research is planned, carried out and reported. There is also significant interaction with the research group of the supervisor chosen for the project.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding** *Up on completion of this 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)***	***K1***
1.2	***Describe correctly Chemical phenomena using chemical principles and scientific reasoning (M)***	***K2***
2	**Skills :** *Up on completion of this 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 to solve problems (in the research topic) (M)***	***S1***
2.2	***Apply their experimental basics and skills to know laboratory equipment, modern instrumentation, and classical techniques used related to his research topic. (M)***	***S2***
2.3	***Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals. (M)***	***S3***
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)***	***S4***
3	**Values:** *Up on completion of this course student will be able to*	
3.1	***Student response to supervisor's instructions during project preparation while adhering to ethical standards. (M)***	***V2***

C. Course Content

No	List of Topics	Contact Hours
1	***Choosing Graduation Research Project.***	***2***
2	***Literature Survey.***	***4***
3	***Materials and Methods Survey***	***1***
4	***Laboratory and/or Field Work.***	***2***
5	***Data Acquisition and Expression.***	***2***
6	***Writing Scientific Papers.***	***2***
7	***Writing Results and Discussion and Thesis Preparation.***	***2***
8	***Perform the required tests and experiments w.r.t supervisor advice***	***30***
Total		45

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** *Up on completion of this 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)***	• ***lecture*** • ***Seminars*** • ***individual presentation*** • ***case studies***	• ***oral and written examinations)*** • ***Presentation viva*** • ***reports***
1.2	***Describe correctly Chemical phenomena using chemical principles and scientific reasoning (M)***	• ***lecture*** • ***Seminars*** • ***individual presentation case studies***	• ***oral and written examinations)*** • ***Presentation viva*** • ***reports***
2.0	**Skills** *Up on completion of this 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 to solve problems (in the research topic) (M)***	• ***lecture*** • ***Seminars*** • ***individual presentation case studies***	• ***oral and written examinations)*** • ***Presentation viva*** • ***reports***
2.2	***Apply their experimental basics and skills to know laboratory equipment, modern instrumentation, and classical techniques used related to his research topic. (M)***	• ***lecture*** • ***Seminars*** • ***individual presentation case studies***	• ***oral and written examinations)*** • ***Presentation viva reports***
…	***Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals. (M)***	• ***lecture*** • ***Seminars*** • ***individual presentation case studies***	• ***oral and written examinations)*** • ***Presentation viva reports***
	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)	• ***lecture*** • ***Seminars*** • ***individual presentation case studies***	• ***Presentation viva*** • ***reports***
3.0	**Values** *Up on completion of this course student will be able to*		
3.1	***Student response to supervisor's instructions during project preparation while adhering to ethical standards. (M)***	• ***lecture*** • ***Seminars*** • ***individual presentation case studies***	• ***oral and written examinations)***

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	***Demonstrate a broad understanding and critical view of key theories, concepts, and terms in the field of research.***	***8-15***	***10***
2	***Describe correctly Chemical phenomena using chemical principles and scientific reasoning***	***8-15***	***10***
3	***Demonstrate the ability to think critically, numerical, and statistical, and logical analysis, and to use graphs and diagrams to solve problems (in the research topic)***	***8-12***	***10***

#	Assessment task*	Week Due	Percentage of Total Assessment Score
4	*Apply their experimental basics and skills to know laboratory equipment, modern instrumentation, and classical techniques used related to his research topic.*	*14-15*	*10*
5	*Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals.*	*14-15*	*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.*	*14-15*	*20*
7	*Student response to supervisor's instructions during project preparation while adhering to ethical standards.*	*4-12*	*20*

***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 :

- *Instructor will be available for academic counseling on daily basis for at 4h/day during office hours.*
- *The office hours are listed in the instructor time table and delivered to students in the first lecturer in each semester.*
- *Instructor is available in a WhatsApp group with student.*

E-mail and Telephone number are delivered to student for any help during semesters.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	*To be determined by supervisor from available sources.*
Essential References Materials	*To be determined by supervisor from available sources*
Electronic Materials	*To be determined by supervisor from available sources*
Other Learning Materials	*To be determined by supervisor from available sources*

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	*1 Lecture room.*
Technology Resources (AV, data show, Smart Board, software, etc.)	*Smart board, Data show, Black board, internet*

Item	Resources
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	***Saudi Digital Library***

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching and Assessment	***Student***	***Likert-type Survey (CES) Indirect***
Extent of achievement of course learning outcomes	***Instructor & Course coordinator***	***Class room evaluation (direct & indirect) + final Department Viva***
Quality of learning resources	***Program coordinator***	***Indirect***
Exam Quality assessment	***Assessment committee***	***Indirect***

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	**Chemistry Department Council**
Reference No.	42 / 35 /102 112
Date	17 /09 /1442 Corresponding to 28 / 04 /2021

LAB Content

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