Course Specification
(Bachelor)

Course Title:	**Graduation Project**
Course Code:	**CHM 1498**
Program:	**Bachelor of Science in Chemical Laboratories**
Department:	**Chemistry**
College:	**Science**
Institution:	**Imam Mohammed Ibn Saud Islamic University**
Version:	**1446-10-v1**
Last Revision Date:	23/9/2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 4 (6)					
4 (2 Lect, 0 Tut, 4 Lab)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐ Elective		
3. Level/year at which this course is offered: Level 8/ Fourth year					
4. Course general Description:					
Graduation Project is an independent task to be carried out by each student individually and accomplished according to a specific timetable duration. Students should achieve the project within one semester. Graduation project is a solo act based on one major department topics and is supervised by one of the staff members. The department assigns a scientific committee with the project supervisor to evaluate and discuss the project in a pre-stated date before the final exam. The student is given freedom to a great extent in choosing the graduation project title; the selected topic will focus on, and follow with the aid of the supervising professor					
5. Pre-requirements for this course (if any)**:**					
Research project course starts in the last semester of the program study, with 120 Credit Hours					
6. Co-requisites for this course (if any)**:**					
7. Course Main Objective(s): Industrial Catalysis, Reactions					
After completing the project, the student is supposed to acquire the necessary skills in the following: ✓ **Be able to carry out a guided graduation project independently.** ✓ **Be able to attend and practice his obtained knowledge and information during his chemistry program appropriately.** ✓ **Be able to search and communicate with the faculty member scientifically.** ✓ **Be able to develop his intellectual abilities in scientific research.**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	90	100%
2	E-learning	0	0
3	Hybrid • Traditional classroom • E-learning	0	0
4	Distance learning	0	0

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	**90**
2.	**Laboratory/Studio**	
3.	**Field**	**0**
4.	**Tutorial**	**0**
5.	**Others (specify)**	**0**
Total		90

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**To recall basic concepts and knowledge to initiate the graduation project**	**K1; K2; K4;**	• Four hours are weekly containing literature survey with supervisor guidance. • Students are encouraged to make regular visits during office hours where they can ask any question about the course.	• Continuous evaluation of the research supervisor • Written the collected the literature survey Oral Discussion
1.2	**To recall basic concepts and knowledge to initiate the graduation project**	**K1; K2; K4;**	• Four hours are weekly containing literature survey with supervisor guidance. • Students are encouraged to make regular visits	• Continuous evaluation of the research supervisor • Written the collected the literature survey • Oral Discussion

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
			during office hours where they can ask any question about the course.	
1.3	**To recall basic concepts and knowledge to initiate the graduation project**	**K1; K2; K4;**	• Four hours are weekly containing literature survey with supervisor guidance. • Students are encouraged to make regular visits during office hours where they can ask any question about the course.	• Continuous evaluation of the research supervisor • Written the collected the literature survey • Oral Discussion
2.0	**Skills**			
2.1	**To develop experience in searching and assessing current literature.**	**S1; S2; S4**	Independent developing under the guidance of the research supervisor through under discussion weekly.	• Continuous evaluation of the research supervisor • Written report Oral discussion
2.2	**To analyze obtained data independently with supervisor guidance and to explain obtained results through scientifically logic thinking, with evaluation of the gained information.**	**S1; S2; S3; S4**	Independent data analysis under the guidance of the research supervisor including further discussion.	• Continuous evaluation of the research supervisor • Written report Oral discussion
2.3	**To interpret the different results taken from various techniques used.**	**S4**	Laboratory experiments and self-study	• Laboratory reports • Oral discussion

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
2.4	**To develop experience in searching and assessing current literature.**	**S1; S2; S4**	• Independent developing under the guidance of the research supervisor through under discussion weekly.	• Continuous evaluation of the research supervisor • Written report • Oral discussion
3.0	**Values, autonomy, and responsibility**			
3.1	**To illustrate the active participation by oral discussion, to demonstrate creative and innovative approaches to his (her) research project subject.**	**S1, V1, V2**	• Motivate students to discuss the graduation project topic. • Oral discussions	• Oral Discussion. • Continuous evaluation of the research supervisor • Oral presentation marks
3.2	**To show ability to communicate effectively with the supervisor, to revise and improve written and visual content and use appropriate technology to achieve desired outcomes, to comprehend information accessed through reading and discussion.**	**V1, V2**	• Independent study under the guidance of the research supervisor with further discussion with supervisor weekly. • Simulation of presentation monitored by the supervisor.	• Oral Discussion. • Continuous evaluation of the research supervisor • Written report.

C. Course Content

No	List of Topics	Contact Hours
1.	**Collection a background and literature review on the suggested work.**	**30**

2.	The student carries out a guided independent study with review of research background and literatures in selected topic in chemistry. The project can be done with laboratory work.	58
3.	Discussion by oral presentation	2
Total		90

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First continuous evaluation (reported by the supervisor)	6th week	30%
2.	Second continuous evaluation (reported by the supervisor)	12th week	30%
3.	Written report in English (20-35 pages)	During the semester	40%
4.	Short talk in English language (oral presentation 15 minutes)	16th week	
5.	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	Depending on Graduation Project Subject
Supportive References	1. Depending on Graduation Project Subject
Electronic Materials	• Websites
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• Each of the class room should be equipped with a whiteboard and a projector, with a maximum of 20 students. • In each laboratory, a list of safety and precautions are provided.

Items	Resources
	• In each lab has proper ventilation, and well equipped with instruments. • In each lab, containers for solid waste, liquid waste, and crushed glasses. • Each lab has a small pharmacy for first aid in case of an accident • In each lab, the rules, conditions, and safety mechanism as well list of Risk, Safety precautions according to Merck Catalogue are hanging in the labs
Technology equipment (projector, smart board, software)	The rooms are equipped with data show, Smart Board, WI-FI access.
Other equipment (depending on the nature of the specialty)	• Appropriate Glasswares for carrying the requested experiments (conical flasks, beakers, measuring cylinders) • Appropriate fine chemicals and solvents (distilled Water ammonium nitrate) • Analytical balance (3 digits), Set gas laws with the glass jacket Data acquisition set for gas laws with glass jacket, PC, Windows® 95 or higher, calorimeter, thermometer, Filter papers , clamps, stands

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	**Students**	**Direct:** Questionnaire.
	Course Responsible	**Direct:** Course e-Portfolio. **Indirect:** Second examiner checklist-Course report.
	Peer Reviewer	**Direct:** Questionnaire. **Indirect:** External assessor report.
Effectiveness of students assessment	**Program Leaders**	**Direct:** Course e-Portfolio. **Indirect:** Course report.
Quality of learning resources	**Students**	**Indirect:** Second examiner checklist-Course report.
	Faculty (Academic Advisory)	**Direct:** course Entrance/Exit. **Indirect:** Observations - Accreditation review.
	Program Leaders	**Direct:** Course e-Portfolio. **Indirect:** Course evaluation survey-

Assessment Areas/Issues	Assessor	Assessment Methods
	Course Responsible **Program Leaders**	Observations- Syllabus review- Accreditation review. **Direct:** Exams - Course e-Portfolio. **Indirect:** Second examiner checklist-Course report. **Indirect:** Exams.
The extent to which CLOs have been achieved		
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**COUNCIL OF DEPARTMENT OF CHEMISTRY**
REFERENCE NO.	**3 (NO. 1/3)**
DATE	**5/3/1446- 8/09/2024**