Course Specification

(Postgraduate Programs)

Course Title:	**Seminar**
Course Code:	**CHM 6295**
Program:	**Master of science in chemistry**
Department:	**Chemistry**
College:	**Science**
Institution:	**Imam Mohammad Ibn Saud Islamic University**
Version:	*Course Specification Version Number*
Last Revision Date:	*Pick Revision Date.*

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A. General information about the course:

1. Course Identification:

1. Credit hours: 1(1Lectures, 0 Lab, 0Tutorials)				
2. Course type				
A.	☐University	☐College	☐Department	☐Track
B.	☒ Required		☐Elective	
3. Level/year at which this course is offered: (Level 1/ Year 2)				
4. Course General Description:				
The course covers modern research aspects related to the student's advanced research plan. The course includes conducting a participatory seminar among the program's students to present and discuss scientific ideas and train on the desired scientific debate. This course is a supervised study in reading and doing seminar that allowing the student to work on a material not covered by any other M. Sc courses. In addition, the course enables the student to be more acquainted with some new research topics in a specific field relevant to the thesis project. A supervisor suggests the topic of the course to a qualified graduate student for M. Sc research subject.				
5. Pre-requirements for this course (if any)**:**				
CHM 6111, CHM 6121, CHM 6131, and CHM 6141				
6. Co-requirements for this course (if any)**:**				
7. Course Main Objective(s):				
• **Involving students in recent research in chemistry and discussing it** • **Demonstrate the ability to listen to a scientific presentation** • **Gain a broader knowledge of the various subfields of chemistry.** • **Gain in-depth knowledge of one topic - the research topic.**				

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	15	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**	15
2.	**Laboratory/Studio**	0
3.	**Field**	0
4.	**Tutorial**	0
5.	**Others (specify)……**	0
	Total	15

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

B.1. *Inorganic Chemistry Track*

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**To outline the relevant information of *Inorganic Chemistry* presented in technical and/or scientific journals.**	**K1. *Inorg.*; K2. *Inorg.*; k3. *Inorg.*; K4. *Inorg.***	▪ **One hours are weekly. Students are encouraged to make regular visits during office hours where they can ask any question about the course.**	▪ **Oral Discussion Participation.**
1.2	**To state the appropriate**	**K1. *Inorg.*; K3. *Inorg.*; K4. *Inorg.***	▪ **One hours are weekly**	▪ **Oral Discussion**

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	methods and routes in formulating a research problem relevant for research topic in ***Inorganic Chemistry***.		containing guidance to formulate the research problem. ▪ Think and talk to conceptualize the research design with optimization.	▪ Participation. ▪ Written mini-reports for evaluation.
1.3	To list in-depth the chemical literatures survey analysis with comparing the required scientific approach covering the thesis topics.	K1. *Inorg.*; K2. *Inorg.*; K3. *Inorg*.	Evaluate and discuss about chemical literatures survey analysis in open discussion	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
1.4	To recognize a critical assessment of scientific work conducted by others.	K1. *Inorg.*; K2. *Inorg.*; K3. *Inorg*.	▪ One hours are weekly containing lectures. Open Discussion about critical assessment of scientific work conducted by others using available references online.	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
2.0	**Skills**			
2.1	To develop experience in searching and assessing current literature serving the research topic.	S1. *Inorg.;* S4. *Inorg.*	▪ Lectures activity. ▪ Self-study Evaluate weekly Independent developing	▪ Continuous evaluation-written test. ▪ Written report

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			through Group discussion	Oral discussion
2.2	To summarize the literature survey, the applied methods and techniques used in Advanced Composite Materials analysis and relevant topics.	S1. *Inorg.;* S2. *Inorg.;* S3. *Inorg.*	▪ Lectures activity. ▪ Self-study. Follow up Independent development in preparing a research topic or scientific presentation.	▪ Continuous evaluation - written test. ▪ Written report ▪ Oral discussion Presentation
2.3	To analyze and contrast the literature survey to construct own research topic.	S1. *Inorg.;* S3.*Inorg.;* S4. *Inorg.*	Independent and group literature survey analysis	▪ Continuous evaluation ▪ Written report ▪ Oral discussion
2.4	To demonstrate Oral Communication on selected problems relevant to the thesis topics in Inorganic chemistry, accompanying writing of mini-Reports, operating electronic mail, and Network in communicating	*S1. Inorg.; S3. Inorg.; S4. Inorg.*	Independent and group literature survey analysis.	▪ Oral Discussion. ▪ Quizzes, and Exams. Giving marks for Oral Discussion in Lectures.
3.0	**Values, autonomy, and responsibility**			
3.1	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire,	*V1. Inorg.; V2. Inorg.*	▪ Brain Storms ▪ Group Discussion	▪ Continuous evaluation ▪ Written report ▪ Oral discussion ▪ Presentation

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	analyze, and communicate information.			
3.2	To appraise effectively the collaboration and inter-professionalism in class discussions or team works, as well as independently	*V1. Inorg.; V2. Inorg.*	▪ Small Group tasks ▪ Open discussion at classroom. ▪ Office hour guiding. Group Presentation of mini-projects	▪ Continuous evaluation ▪ Written report ▪ Oral discussion Presentation
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B.2. *Organic Chemistry Track*

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	To outline the relevant information of ***Organic Chemistry*** presented in technical and/or scientific journals.	K1. *Org.*; K2. *Org.*; k3. *Org.*; K4. *Org*	▪ One hours are weekly. Students are encouraged to make regular visits during office hours where they can ask any question about the course.	▪ Oral Discussion Participation.
1.2	To state the appropriate methods and routes in formulating a research problem relevant for research topic in ***Organic Chemistry***.	K1. *Org.*; K3. *Org.*; K4. *Org*.	▪ One hours are weekly containing guidance to formulate the research problem. ▪ Think and talk to	▪ Oral Discussion ▪ Participation. ▪ Written mini-reports for evaluation.

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			conceptualize the research design with optimization.	
1.3	To list in-depth the chemical literatures survey analysis with comparing the required scientific approach covering the thesis topics.	K1. *Org.*; K2. *Org.*; K3. *Org*.	Evaluate and discuss about chemical literatures survey analysis in open discussion	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
1.4	To recognize a critical assessment of scientific work conducted by others.	K1. *Org.*; K2. *Org.*; K3. *Org*.	▪ One hours are weekly containing lectures. Open Discussion about critical assessment of scientific work conducted by others using available references online.	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
2.0	**Skills**			
2.1	To develop experience in searching and assessing current literature serving the research topic.	S1. *Org.;* S4. *Org.*	▪ Lectures activity. ▪ Self-study Evaluate weekly Independent developing through Group discussion	▪ Continuous evaluation-written test. ▪ Written report ▪ Oral discussion
2.2	To summarize the literature survey, the applied methods and techniques used in Complex Structures	S1. *Org.;* S2. *Org.;* S3. *Org.*	▪ Lectures activity. ▪ Self-study. Follow up Independent	▪ Continuous evaluation - written test.

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	synthesis and analysis and relevant topics in applications.		development in preparing a research topic or scientific presentation.	▪ Written report ▪ Oral discussion Presentation
2.3	To analyze and contrast the literature survey to construct own research topic.	S1. *Org.;* S3. *Org.;* S4. *Org.*	Independent and group literature survey analysis	▪ Continuous evaluation ▪ Written report ▪ Oral discussion
2.4	To demonstrate Oral Communication on selected problems relevant to the thesis topics in Organic chemistry, accompanying writing of mini-Reports, operating electronic mail, and Network in communicating with others.	*S1. Org.; S3. Org.; S4. Org.*	Independent and group literature survey analysis	▪ Oral Discussion. ▪ Quizzes, and Exams. Giving marks for Oral Discussion in Lectures.
3.0	**Values, autonomy, and responsibility**			
3.1	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information.	*V1. Org.; V2. Org.*	▪ Brain Storms Group Discussion	▪ Continuous evaluation ▪ Written report ▪ Oral discussion Presentation
3.2	To appraise effectively the collaboration and	*V1. Org.; V2. Org.*	▪ Small Group tasks	▪ Continuous evaluation

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	inter-professionalism in class discussions or team works, as well as independently		▪ Open discussion at classroom. ▪ Office hour guiding. Group Presentation of mini-projects	▪ Written report ▪ Oral discussion ▪ Presentation
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B.3. ***Analytical Chemistry Track***

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	To outline the relevant information of ***Analytical Chemistry*** presented in technical and/or scientific journals.	K1. *Anal.*; K2. *Anal.*; k3. *Anal.*; K4. *Anal.*	▪ One hours are weekly. Students are encouraged to make regular visits during office hours where they can ask any question about the course.	▪ Oral Discussion ▪ Participation.
1.2	To state the appropriate methods and routes in formulating a research problem relevant for research topic in ***Analytical Chemistry***.	K1. *Anal.*; K2. *Anal.*; K4. *Anal.*	▪ One hours are weekly containing guidance to formulate the research problem. ▪ Think and talk to conceptualize the research design with optimization.	▪ Oral Discussion ▪ Participation. ▪ Written mini-reports for evaluation.

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.3	To list in-depth the chemical literatures survey analysis with comparing the required scientific approach covering the thesis topics.	K1. *Anal.*; K2. *Anal.*; K3. *Anal.*	Evaluate and discuss about chemical literatures survey analysis in open discussion	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
1.4	To recognize a critical assessment of scientific work conducted by others.	K1. *Anal.*; K2. *Anal.*; K3. *Anal.*	▪ One hours are weekly containing lectures. Open Discussion about critical assessment of scientific work conducted by others using available references online.	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
2.0	**Skills**			
2.1	To develop experience in searching and assessing current literature serving the research topic.	S1. *Anal.*; S4. *Anal.*	▪ Lectures activity. ▪ Self-study Evaluate weekly Independent developing through Group discussion	▪ Continuous evaluation-written test. ▪ Written report Oral discussion
2.2	To summarize the literature survey, the applied methods and techniques used in Environmental Chemistry, Water Pollution and relevant topics in applications in	S1. *Anal.*; S2. *Anal.*; S3. *Anal.*	▪ Lectures activity. ▪ Self-study. Follow up Independent development in preparing a research topic or scientific presentation.	▪ Continuous evaluation - written test. ▪ Written report ▪ Oral discussion Presentation

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	Analytical Chemistry.			
2.3	To analyze and contrast the literature survey to construct own research topic.	S1. *Anal.*; S3. *Anal.*; S4. *Anal.*	Independent and group literature survey analysis	▪ Continuous evaluation ▪ Written report Oral discussion
2.4	To demonstrate Oral Communication on selected problems relevant to the thesis topics in Analytical Chemistry, accompanying writing of mini-Reports, operating electronic mail, and Network in communicating with others.	*S1. Anal.*; *S3. Anal.*; *S4. Anal.*	Independent and group literature survey analysis.	▪ Oral Discussion. ▪ Quizzes, and Exams. Giving marks for Oral Discussion in Lectures.
3.0	**Values, autonomy, and responsibility**			
3.1	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information.	*V1. Anal.*; *V2. Anal.*	▪ Brain Storms Group Discussion	▪ Continuous evaluation ▪ Written report ▪ Oral discussion Presentation
3.2	To appraise effectively the collaboration and inter-professionalism in class discussions or	*V1. Anal.*; *V2. Anal.*	▪ Small Group tasks ▪ Open discussion at classroom. ▪ Office hour guiding.	▪ Continuous evaluation ▪ Written report ▪ Oral discussion Presentation

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	team works, as well as independently		Group Presentation of mini-projects	
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3.D. *Physical Chemistry Track*

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	To outline the relevant information of ***Physical Chemistry*** presented in technical and/or scientific journals	K1. *Phy.*; K2. *Phy.*; k3. *Phy.*; K4. *Phy.*	▪ One hours are weekly. Students are encouraged to make regular visits during office hours where they can ask any question about the course.	▪ Oral Discussion Participation.
1.2	To state the appropriate methods and routes in formulating a research problem relevant for research topic in ***Physical Chemistry***.	K1. *Phy.*; K2. *Phy.*; K4. *Phy*	▪ One hours are weekly containing guidance to formulate the research problem. ▪ Think and talk to conceptualize the research design with optimization.	▪ Oral Discussion ▪ Participation. ▪ Written mini-reports for evaluation.
1.3	To list in-depth the chemical literatures survey, analysis with comparing the required scientific	K1. *Phy.*; K2. *Phy.*; K3. *Phy.*	Evaluate and discuss about chemical literatures survey	▪ Oral Discussion ▪ Participation.

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	approach covering the thesis topics.		analysis in open discussion	▪ Mini-reports for evaluation
1.4	To recognize a critical assessment of scientific work conducted by others.	K1. *Phy.*; K2. *Phy.*; K3. *Phy.*	▪ One hours are weekly containing lectures. Open Discussion about critical assessment of scientific work conducted by others using available references online.	▪ Oral Discussion ▪ Participation. ▪ Mini-reports for evaluation
2.0	**Skills**			
2.1	To develop experience in searching and assessing current literature serving the research topic.	S1. *Phy.*; S4. *Phy.*	▪ Lectures activity. ▪ Self-study Evaluate weekly Independent developing through Group discussion	▪ Continuous evaluation-written test. ▪ Written report Oral discussion
2.2	To summarize the literature survey, the applied methods and techniques used Thermodynamics and Materials Science and its applications in Nanomaterials, and Hybrid Materials, and relevant topics and applications.	S1. *Phy.*; S2. *Phy.* S3. *Phy.*	▪ Lectures activity. ▪ Self-study. Follow up Independent development in preparing a research topic or scientific presentation.	▪ Continuous evaluation - written test. ▪ Written report ▪ Oral discussion Presentation

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
2.3	To analyze and contrast the literature survey to construct own research topic.	S1. *Phy.*; S3. *Phy.*; S4. *Phy.*	Independent and group literature survey analysis	▪ Continuous evaluation ▪ Written report Oral discussion
2.4	To demonstrate Oral Communication on selected problems relevant to the thesis topics in Physical Chemistry, accompanying writing of mini-Reports, operating electronic mail, and Network in communicating with others.	*S1. Phy.; S3. Phy.; S4. Phy.*	Independent and group literature survey analysis.	▪ Oral Discussion. ▪ Quizzes, and Exams. Giving marks for Oral Discussion in Lectures.
3.0	**Values, autonomy, and responsibility**			
3.1	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information.	*V1. Phy.; V2. Phy.*	▪ Brain Storms Group Discussion	▪ Continuous evaluation ▪ Written report ▪ Oral discussion Presentation
3.2	To appraise effectively the collaboration and inter-professionalism in class discussions or team works, as well as independently	*V1. Phy.; V2. Phy.*	▪ Small Group tasks ▪ Open discussion at classroom. ▪ Office hour guiding.	▪ Continuous evaluation ▪ Written report ▪ Oral discussion Presentation

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
			Group Presentation of mini-projects	
…				

C. Course Content:

No	List of Topics	Contact Hours
1.	Proposed title relevant for M.Sc. Project, Student' work on their own preliminary master's thesis	4
2.	Attendance at least in four seminars and reporting them.	3
3.	Determining a list of specified materials and the appropriate resources to read including IMSIU Ethical Standards	2
4.	Students' feedback on another student's preliminary master's thesis	1
Total		10

D. Students Assessment Activities:

•Tasks of Seminar are individuality processed, and the instructor, weekly evaluate the final effort deployed by the students separately.

•The students frequently prepare a written mini report parallel with open discussion and seminars in the most of the course topics.

The students will be divided into small groups, and each one will have a selected chemistry problem to build up research methodology, concepts, and experiments planning, end up with a research presentation.

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	***The First Report*** **for research process Set up, Scientific research designs and methodology. Oral presentation associated with written report.**	**3th week**	**20%**
2.	***The Second Report*****: Report on and presentation of another student's (4 times/semester), oral presentation associated with report.** (***15% Oral presentation with written report, , 5% class room activity***)	**6th /7th week**	**20%**

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
3.	***Research Summary*** **Oral Presentation of own research approach. (e.g. Research article critique, participation)** ***(group discussion and evaluation of their work)***	**Around 11th– 12th week**	**20%**
4.	***Final Presentation*****: a selected research topic relevant for Master Program Proposal announced in 3th week** ***(15% writing, 25% presentation) (15% writing, 25% presentation)***	**17th week**	**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	**A specified Books, journal articles and references from University Central Library and Saudi Digital Library will be delivered.**
Supportive References	**None**
Electronic Materials	• **Saudi Digital Library.** • **Available database.**
Other Learning Materials	• **Blackboard** • **Multimedia associated with the text book and the relevant websites**

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	**Each of the classroom should be equipped with a whiteboard and a projector, with a maximum of 20 students.**
Technology equipment (Projector, smart board, software)	**The rooms are equipped with data show, Smart Board, WI-FI access.**

Items	Resources
Other equipment (Depending on the nature of the specialty)	**None**

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- GCC)	Direct: course Entrance/Exit. Indirect: Observations - Accreditation review.
	Program Leaders	Direct: Course e-Portfolio. Indirect: Course evaluation survey- Observations- Syllabus review- Accreditation review.
	Students	Indirect: Second examiner checklist- Course report
The extent to which CLOs have been achieved	Course Responsible	Direct: Exams - Course e-Portfolio.

Assessment Areas/Issues	Assessor	Assessment Methods
		Indirect: Second examiner checklist- Course report.
	Program Leaders	Indirect: Exams
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	COUNCIL OF CHEMISTRY DEPARTMENT
REFERENCE NO.	10 (NO. 2/10)
DATE	21/04/1444- 15/11/2022