Program Specification

(Postgraduate Programs)

Program Name:	**Master of Science in Chemistry**
Program Code (per the Saudi Standard Classification of Educational Levels and Specializations):	**053101**
Qualification Level:	**7**
Department:	**Chemistry**
College:	**Science**
Institution:	**Imam Mohammed Ibn Saud Islamic University**
Program Specification:	New ☐ updated* ☒
Last Review Date:	**October 2024**

*Attach the previous version of the Program Specification.

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A. Program Identification and General Information:

1. Program's Main Location:

Main Campus (Male section) and King Abdullah City (for the Female Section).

2. Branches Offering the Program (if any):

None

3. System of Study:

☐ Coursework & Thesis ☐ Coursework

4. Mode of Study:

☐ On Campus ☐ Distance Education ☐ Other ……(specify)

5. Partnerships with other parties (if any) and the nature of each:

- Partnership Arrangement: --
- Type of Partnership:-
- Duration of Partnership:-

6. Professions/jobs for which students are qualified:

Professional Occupations/Jobs include the chemical or pharmaceutical industry, from bench work and instrumentation to managing projects and laboratories, as the following:

- **according to the classification of the Ministry of Human Resources**

	Code	Professional Name
1	211301	كيميائى Chemist
2	211302	كيميائي صناعات Chemist for Industrial Sector

- **Unified Saudi Occupational Classification Guide**

	Code	Professional Name
1	231026	lecturer
2	231027	Administrator
3	211301	Chemist
4	211302	Chemist for Industrial Sector
5	211304	Chemist for petrochemical industries
6	232005	Applied science instructor Chemistry
7	211303	Chemist for Pharmaceutical Sciences and health sector labs

7. Relevant occupational/ Professional sectors:

- **Education Employers: Teaching in Colleges, Universities, and technical institutes.**
- **Scientific Research: King Abdulaziz City for Science and Technology - Research centers in universities and R&D in industrial sectors.**
- **Industry Areas: Research and development in:**
  - ✓ **Pharmaceutical sector.**
  - ✓ **Petroleum industries, including petrochemicals and plastics**
  - ✓ **Fertilizer industry and urea production**
  - ✓ **Building materials industry laboratories for manufacturing.**
- **Ministry of Health laboratories - laboratories for analyzing toxins, chemical pollutants and clinical chemistry laboratories**
- **Ministry of Agriculture Laboratories - Pesticide and Fertilizer Analysis Unit and Food Analysis Laboratories**
- **Water purification and wastewater treatment companies**
- **Quality and calibration - Saudi Standards Authority (SASO)**
- **Saudi Food and Drug Authority (SFDA)**

8. Major Tracks/Pathways (if any):

<table>
<tr><th>Major track/pathway</th><th>Credit hours
(For each track)</th><th>Professions/jobs
(For each track)</th></tr>
<tr><td>1. Chemistry- Inorganic Chemistry (Inorg.) SASCID-2020 CODE: 053107</td><td>34</td><td>Inorganic Chemistry Pathway (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide)
<table>
<tr><th></th><th>Code</th><th>Professional Name</th></tr>
<tr><td>1</td><td>231026</td><td>lecturer</td></tr>
<tr><td>2</td><td>231027</td><td>Administrator</td></tr>
<tr><td>3</td><td>211301</td><td>Chemist</td></tr>
<tr><td>4</td><td>211302</td><td>Chemist for Industrial Sector</td></tr>
<tr><td>5</td><td>232005</td><td>Applied science instructor Chemistry</td></tr>
<tr><td>6</td><td>211303</td><td>Chemist for Pharmaceutical Sciences and health sector labs</td></tr>
</table>
▪ Researchers in Governmental Research Centers, Industrial Research and Development Sectors.
▪ Qualified lecturers in Universities, Scientific Research Institutions and High Schools
▪ Building materials and supplies industries
▪ Ministry of Energy, Industry and Mineral Resources, Quality Control and Production Sectors.
▪ Water purification and reduction of environmental pollution, Analysis and Water treatment sectors.
▪ Consultants in Chemical companies.</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

2. Chemistry- Organic Chemistry (Org.) SASCID-20 CODE: 053103	**34**	**Organic Chemistry Pathway** (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide) **Code** / **Professional Name** **1** **231026** lecturer **2** **231027** Administrator **3** **211301** Chemist **4** **211302** Chemist for Industrial Sector **5** **211304** Chemist for petrochemical industries **6** **232005** Applied science instructor Chemistry **7** **211303** Chemist for Pharmaceutical Sciences and health sector labs ▪ Health Sectors: medical analysis laboratories in the Ministry of Health ▪ Researchers in Governmental Research Centers, Industrial Research and Development Sectors. ▪ Qualified lecturers in Universities, Scientific Research Institutions and High Schools ▪ Ministry of Agriculture - Pesticide Analysis Unit - Fertilizers - Food Analysis Laboratories ▪ Private sector such as the pharmaceutical companies in the area in quality control, production, and research and development ▪ Petrochemical companies Production Sector and Quality Control, Research and Development.
3. Chemistry-Analytical Chemistry (Anal.) SASCID-20 CODE: 053104	**34**	**Analytical Chemistry Pathway** (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide) **Code** / **Professional Name** **1** **231026** lecturer **2** **231027** Administrator **3** **211301** Chemist **4** **211302** Chemist for Industrial Sector **5** **211304** Chemist for petrochemical industries **6** **232005** Applied science instructor Chemistry **7** **211303** Chemist for Pharmaceutical Sciences and health sector labs ▪ Health Sectors : medical analysis laboratories in the Ministry of Health ▪ Researchers in Governmental Research Centers, Industrial Research and Development Sectors. ▪ Qualified lecturers in Universities, Scientific Research Institutions and High Schools

		▪ Ministry of Agriculture - Pesticide Analysis Unit - Fertilizers - Food Analysis Laboratories ▪ Private sector such as the pharmaceutical companies in the area in quality control, production, and research and development ▪ Water purification and reduction of environmental pollution, Analysis and Water treatment sectors. ▪ Consultants in Chemical companies.
4- Chemistry- Physical Chemistry (Phy.) SASCID-20 CODE: 053105	**34**	**Physical Chemistry Pathway** (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide) **Code / Professional Name** **1** 231026 lecturer **2** 231027 Administrator **3** 211301 Chemist **4** 211302 Chemist for Industrial Sector **5** 211304 Chemist for petrochemical industries **6** 232005 Applied science instructor Chemistry ▪ Researchers in Governmental Research Centers, Industrial Research and Development Sectors. ▪ Qualified lecturers in Universities, Scientific Research Institutions and High Schools ▪ Ministry of Energy, Industry and Mineral Resources, Analysis, Quality Control and Production Sectors. ▪ Water purification and reduction of environmental pollution, Analysis and Water treatment sectors. ▪ Consultants in Chemical companies.

9. Exit Points/Awarded Degree (if any):

Exit points*/Awarded degree	Credit hours**
1. Higher Diploma in Chemistry	**24** (with **a GPA less than 3.75, that will not allow Registration of the thesis, p.26 – Program Specification 2024**)

***At least one year with a minimum of 24 Credit Hours (According to NQF-p.25, a minimum of 24 Credit Hours)/ sublevel 667- (SASCED-2020, and following the *Procedural, organizational guide for the development of academic programs*) / Higher Diploma in Chemistry**
****24 Credit Hours(with a GPA less than 3.75, that will not allow Registration of the thesis, p.26 Program Specification 2024)**

6. Professions/jobs for which students are qualified: (Exit Point)

Professional Occupations/Jobs include the chemical or pharmaceutical industry, from bench work and instrumentation to managing projects and laboratories, as the following:

- **according to the classification of the Ministry of Human Resources**

	Code	Professional Name

1	211301	Chemist كيميائى
2	211302	Chemist for Industrial Sector كيميائي صناعات

- **Unified Saudi Occupational Classification Guide**

	Code	Professional Name
1	231026	lecturer
2	231027	Administrator
3	211301	Chemist
4	211302	Chemist for Industrial Sector
5	211304	Chemist for petrochemical industries
6	232005	Applied science instructor Chemistry
7	211303	Chemist for Pharmaceutical Sciences and health sector labs

10. Total credit hours: (34)

B. Mission, Goals, and Program Learning Outcomes

1. Program Mission:

Providing graduates with creative skills, critical scientific thinking, and capabilities for scientific communication and developing their abilities to join work in the field of chemistry in either academic or industrial sectors.

2. Program Goals:

The program goals (PG) set by the department, in support of the mission, require that the Graduates of the Master of Science in Chemistry program should:

PG 1. Providing *the Graduates* with an attractive environment in the teaching and research fields for the distinguished wishing to study the specialty of chemistry.

PG 2. Qualifying *the Graduates* with the necessary skills to work in the research and industrial fields and pursue higher studies.

PG 3. Developing the capabilities of *the Graduates* in the field of using modern equipment and techniques in the specialty of chemistry.

PG 4. Enhancing the capabilities of *the Graduates* in the investigation, research, and conclusion in the field of scientific research.

PG 5. Increasing and refining the *the Graduates* competitive ability, knowledge and skill qualification to meet the needs of the labor market and the promising economic growth of Vision 2030.

A pre-requisite for achieving these goals is that, along with the department and faculty, *the graduates* should do the necessary hard work with brainstorming to follow the set procedures seriously and honestly, leading to the degree.

3. Program Learning Outcomes:*

3.1. *PLO Inorganic Chemistry Track (Inorg.)* SASCID-20 CODE: 053107

Knowledge and Understanding:	
K1. Inorg.	To list comprehensive and consistent deep of Inorganic Chemistry principles and concepts required and related topics.
K2. Inorg.	To define the Plane of Symmetry, Inversion Centre, Point groups, Chirality, and Symmetry Operations in Inorganic Chemistry and related fields.
K3. Inorg.	To describe the newest progress and development in Inorganic Chemistry and related fields that serve the specialty.
K4. Inorg.	To outline Transition Metal Preparation, and Metal-Ligand bonding theories to develop, update, and present information inclusive of various or relevant topics.

Skills:	
S1. Inorg.	To Compare and evaluate concepts and theories of Symmetry Elements and Symmetry Operations by exploring the Plane of Symmetry, Inversion Centre, Point groups, Chirality and Symmetry Operations
S2. Inorg.	To reorganize the professional instruments utilization, sensitive equipment, and deal with hazardous and non-hazardous materials safely with a total capacity to analyze Advanced Composite Materials and problems relevant to career.
S3. Inorg.	To interpret Electronic Absorption Spectroscopy, metals routes inside the biological system, Morse Potential Energy Diagram
S4. Inorg.	To summarize research results related to Industrial Inorganic Chemistry and Advanced Composite Materials by using IT and available digital tools.
S...	
Values, Autonomy, and Responsibility:	
V1. Inorg.	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information based on moderation in his thought and behavior while preserving national and religious identity and a commitment to responsible citizenship
V2. Inorg.	To show effective capabilities and flexibility in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

3. Program Learning Outcomes:*

3.1. ***PLO Organic Chemistry Track (Org.)*** **SASCID-20 CODE: 053103**

Knowledge and Understanding:	
K1. Org.	To list comprehensive and consistent Organic Chemistry principles and concepts required in Organic Chemistry and related topics.
K2. Org.	To define the full required knowledge of Chemical Synthesis, Full elucidation of Chemical Structures or methods, and tools, in Organic Chemistry and related fields.
K3. Org.	To state the newest progress and development in Organic Chemistry and related fields that serve the specialty.
K4. Org.	To outline the Organic Chemistry Principals to develop, update, and present information inclusive of its various or relevant topics.
Skills:	
*S*1. Org.	To develop and evaluate Synthetic Methods, based on Molecular Structure, Stereochemistry, Functional Groups, and reactivity relationships.
*S*2. Org.	To reorganize the professional instruments utilization, sensitive equipment, and deal with hazardous and non-hazardous materials safely with a total capacity to analyze Advanced Organic Compounds and problems relevant to career.
*S*3. Org.	To interpret and analyze Organic Compounds structures to predict and postulate the Organic Reaction Mechanism support a reasonable argument.

S4. Org.	To summarize research results related to Organic Chemistry and its relevant topics by using IT and available digital tools.
Values, Autonomy, and Responsibility:	
V1. Org.	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information based on moderation in his thought and behavior while preserving national and religious identity and a commitment to responsible citizenship
V2. Org.	To show effective capabilities and flexibility in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

3. Program Learning Outcomes:*

3.1. ***PLO Analytical Chemistry Track (Anal.)*** **SASCID-20 CODE: 053104**

Knowledge and Understanding:	
*K*1.Anal.	To list a broad and consistent Analytical Chemistry principles and concepts and related topics.
*K2.*Anal.	To define a full required Principles of Contaminant behavior in the aquatic system and the fate of pollutants, Modern Analytical Atomic Spectroscopy Methods, and related fields.
K3. Anal	To describe the newest progress and development in Analytical Chemistry and related fields that serve the specialty.
*K4.*Anal.	To outline the Analytical Chemistry Principals and methods to develop, update, and present information inclusive of its various or relevant topics.
Skills:	
*S*1.Anal.	To justify Modern Analytical Atomic Spectroscopy Methods and Electrochemical analytical techniques in Environmental Chemistry and Water Pollution.
S2.Anal.	To reorganize the professional instruments utilization, sensitive equipment, and deal with hazardous and non-hazardous materials safely with a total capacity to analyze Environmental Samples and Compounds and problems relevant to career.
S3.Anal.	To explain Computed and Statistical Data with justification obtained in Analytical Chemistry.
*S4.*Anal.	To summarize research results related to Analytical Chemistry and its relevant topics in Environmental Chemistry by using IT and available digital tools.
Values, Autonomy, and Responsibility:	
*V*1. Anal.	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information based on moderation in his thought and behavior while preserving national and religious identity and a commitment to responsible citizenship
*V*2. Anal.	To show effective capabilities in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

3. Program Learning Outcomes:*	
3.1. *PLO Physical Chemistry Track (Phy..)* SASCID-20 CODE: 053105	
Knowledge and Understanding:	
***K*1. Phy.**	**To list a broad and consistent deep of Physical Chemistry principles, concepts and theories required and related topics.**
***K2.* Phy.**	**To define a full required knowledge of thermodynamics and kinetics for materials and materials processes.**
***K3.* Phy.**	**To describe the newest progress and development in Physical Chemistry and related fields that serve the specialty.**
***K4.* Phy.**	**To summarize Hybrid Materials, Nanocomposites, and Bimetallic Corrosion structures, applications, and Polarization resistance to develop, update, and present information.**
K…	
Skills:	
***S*1. Phy.**	**To evaluate Kinetics, Thermodynamics, and Materials Science and its applications in Nanomaterials, and Hybrid Materials.**
***S*2. Phy.**	**To reorganize the professional instruments utilization, sensitive equipment, and deal with hazardous and non-hazardous materials safely with a total capacity to analyze Nanomaterials, and Hybrid Materials properties, and problems relevant to career.**
***S*3. Phy.**	**To compare reactivity at the interfaces of different Materials with applications as Biosensors and Catalysis.**
***S*4. Phy.**	**To summarize research results related to Corrosions, Catalysis and Nanomaterials and Hybrid Materials and its relevant topics by using IT and available digital tools.**
Values, Autonomy, and Responsibility:	
***V*1. Phy.**	**To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information based on moderation in his thought and behavior while preserving national and religious identity and a commitment to responsible citizenship**
***V*2. Phy.**	**To show effective capabilities in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.**

Program Learning Outcomes of *Exit POINT*

3.Program Learning Outcomes*	
3.5 *PLO Higher Diploma (HD)* (Exit Point) SASCID-20 CODE: 053101 (Sublevel 667)	
Knowledge and Understanding	
***K*1. HD.**	**To list a broad and consistent deep of Chemistry principles, concepts and theories required and related topics.**
***K2.* HD.**	**To define a full required knowledge of Chemistry application**
***K3.*HD.**	**To describe and update the newest progress and development in Chemistry and related fields that serve the labor market and social community**

Skills	
*S*1. HD.	To reorganize the professional instruments utilization, sensitive equipment, and deal with hazardous and non-hazardous materials safely with a total capacity to analyze chemical properties, and problems relevant to career.
*S*2. HD	To compare and choose the appropriate techniques and instruments in Chemical elucidation, analysis and its application in industrial sectors
*S*3. HD.	To summarize research results and solving chemical problems that created during work, and its relevant topics by using IT and available digital tools.
Values, Autonomy, and Responsibility:	
*V*1. HD.	To perform a scientific presentation, research, and work independently and integrate with a collaborated group, Using IT to acquire, analyze, and communicate information based on moderation in his thought and behavior while preserving national and religious identity and a commitment to responsible citizenship
*V*2. HD.	To show effective capabilities in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

Add a table for each track (if any)

C. Curriculum:

1. Curriculum Structure:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Course	Required	6	19	55.88%
	Elective	3	9	26.48%
Graduation Project (if any)	None	0	0	0
Thesis (if any)	Required	1	6	17.64%
Field Experience(if any)	None	0	0	0
Others (.....)				
Total		10	34	100%

* Add a separate table for each track (if any).

2. Program Courses:

2.1 ***Inorganic Chemistry Track (Inorg.)***

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	CHM 6111	Inorganic Molecular Spectroscopy	Required	None	4 (4,0,0)	Program
	CHM 6121	Advanced Organic Chemistry	Required	None	4 (4,0,0)	Program
	CHM 6131	Advanced Analytical Chemistry	Required	None	4 (4,0,0)	Program
Level 2	CHM 6141	Advanced Physical Chemistry	Required	None	4 (4,0,0)	Program
	CHM 611X**	Elective Course 1 (Inorg.)	Required	CHM 6111	3 (3,0,0)	Program
	CHM 611X**	Elective Course 2 (Inorg.)	Required	CHM 6111	3 (3,0,0)	Program
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)	Program
Exit Point* 24 Credit Hours						
Level 3	CHM 611X**	Elective Course 3 (Inorg.)	Required	CHM 6111	3 (3,0,0)	Program
	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)	Program
Level 4	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	6 (0,12,0)	Program

**Elective Courses –Inorganic Chemistry Track (List A)

Level 2	CHM 6112	Advanced Inorganic Reaction Mechanisms	Required	CHM 6111	3 (3,0,0)	Program
	CHM 6113	Advanced Coordination Chemistry	Required	CHM 6111	3 (3,0,0)	Program
	CHM 6114	Selected Topics in Inorganic Chemistry	Required	CHM 6111	3 (3,0,0)	Program
	CHM 6115	Bio-inorganic Chemistry	Required	CHM 6111	3 (3,0,0)	Program
Level	CHM 6216	Chemistry and Technology of Inorganic Materials	Required	CHM 6111	3 (3,0,0)	Program

3	CHM 6217	Advanced Inorganic Chemistry applications	Required	CHM 6111	3 (3,0,0)	Program

2.2 *Organic Chemistry Track (Org.)*

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	CHM 6111	Inorganic Molecular Spectroscopy	Required	None	4 (4,0,0)	Program
	CHM 6121	Advanced Organic Chemistry	Required	None	4 (4,0,0)	Program
	CHM 6131	Advanced Analytical Chemistry	Required	None	4 (4,0,0)	Program
Level 2	CHM 6141	Advanced Physical Chemistry	Required	None	4 (4,0,0)	Program
	CHM 612X**	Elective Course 1 (Org.)	Required	CHM 6121	3 (3,0,0)	Program
	CHM 612X**	Elective Course 2 (Org.)	Required	CHM 6121	3 (3,0,0)	Program
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)	Program
Exit Point* 24 Credit Hours						
Level 3	CHM 612X	Elective Course 3 (Org.)	Required	CHM 6121	3 (3,0,0)	Program
	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)	Program
Level 4	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	6 (0,12,0)	Program

**Elective Courses –Organic Chemistry Track (List B)

Level 2	CHM 6122	Physical Organic Chemistry	Required	CHM 6121	3 (3,0,0)	Program
	CHM 6123	Spectroscopic Methods for Determining Organic Compounds Structures	Required	CHM 6121	3 (3,0,0)	Program
	CHM 6124	Stereoselectivity Synthesis	Required	CHM 6121	3 (3,0,0)	Program
	CHM 6125	Advanced Bio-Organic Chemistry	Required	CHM 6121	3 (3,0,0)	Program

Level 3	CHM 6226	Chemistry of Organic Polymers and Petrochemicals	Required	CHM 6121	3 (3,0,0)	Program
	CHM 6227	Selected Topics in Organic Chemistry	Required	CHM 6121	3 (3,0,0)	Program

2.3 ***Analytical Chemistry Track (Anal.)***

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	CHM 6111	Inorganic Molecular Spectroscopy	Required	None	4 (3,0,0)	Program
	CHM 6121	Advanced Organic Chemistry	Required	None	4 (3,0,0)	Program
	CHM 6131	Advanced Analytical Chemistry	Required	None	4 (3,0,0)	Program
Level 2	CHM 6141	Advanced Physical Chemistry	Required	None	4 (3,0,0)	Program
	CHM 613X**	Elective Course 1 (Anal.)	Required	CHM 6131	3 (3,0,0)	Program
	CHM 613X**	Elective Course 2 (Anal.)	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)	Program
Exit Point* 24 Credit Hours						
Level 3	CHM 613X**	Elective Course 3 (Anal.)	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)	Program
Level 4	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	6 (0,12,0)	Program

****Elective Courses –Analytical Chemistry Track (List C)**

Level 2	CHM 6132	Spectroscopic Methods	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6133	Analytical Separation Methods	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6134	Advanced Environmental Chemistry	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6135	Electroanalytical Chemistry	Required	CHM 6131	3 (3,0,0)	Program

Level 3	STA 6220	Statistical Analysis for Analytical Chemistry	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6237	Selected Topics in Analytical Chemistry	Required	CHM 6121	3 (3,0,0)	Program

2.4 *Physical Chemistry Track (Phy.)*

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	CHM 6111	Inorganic Molecular Spectroscopy	Required	None	4 (3,0,0)	Program
	CHM 6121	Advanced Organic Chemistry	Required	None	4 (3,0,0)	Program
	CHM 6131	Advanced Analytical Chemistry	Required	None	4 (3,0,0)	Program
	CHM 6141	Advanced Physical Chemistry	Required	None	4 (3,0,0)	Program
Level 2	CHM 614X***	Elective Course 1 (Phy.)	Required	CHM 6131	3 (3,0,0)	Program
	CHM 614X***	Elective Course 2 (Phy.)	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)	Program
Exit Point* 24 Credit Hours						
Level 3	CHM 614X***	Elective Course 3 (Anal.)	Required	CHM 6131	3 (3,0,0)	Program
	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)	Program
Level 4	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	6 (0,12,0)	Program

***Elective Courses –Physical Chemistry Track – (List D)- Co-request

Level 2	CHM 6142	Nanomaterials and Hybrid Materials	Required	Co-req. CHM 6141	3 (3,0,0)	Program
	CHM 6143	Advanced kinetics - Heterogeneous Kinetics	Required	Co-req. CHM 6141	3 (3,0,0)	Program
	CHM 6144	Catalysis and its industrial applications	Required	Co-req. CHM 6141	3 (3,0,0)	Program

	CHM 6145	Advanced Electrochemistry and Corrosion	Required	Co-req. CHM 6141	3 (3,0,0)	Program
	CHM 6146	Materials, Surfaces and Interfaces		Co-req. CHM 6141	3 (3,0,0)	Program
Level 3	CHM 6247	Advanced Quantum	Required	CHM 6141	3 (3,0,0)	Program
	CHM 6248	Physical Applications of Green Chemistry	Required	CHM 6141	3 (3,0,0)	Program
	CHM 6249	Selected topics in physical Chemistry	Required	CHM 6141	3 (3,0,0)	Program

* **Exit Point***: 24 Credit Hours (with **a GPA less than 3.75, that will not allow Registration of the thesis, p.26 – Program Specification 2024**)

3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (T-104)

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with the program's courses according to the desired performance levels.
(I = Introduced, P = Practiced, M = Mastered).

4.1 *Inorganic Chemistry Track (Inorg.)*

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1. Inorg	K2. inorg.	K3. inorg.	K4. inorg.	S1. inorg	S2. inorg	S3. inorg	S4. inorg.	V1 inorg.	V2 inorg
CHM 6111	I	I	I	P	I	P	I	I	P	P
CHM 6121	P	P	M	P	P	P	P	M	P	P
CHM 6131	I	I	I	P	I	I	P	I	P	P
CHM 6141	I	I	I	I	I	P	I	I	I	P
CHM 611X(E1)	P	P	I	I	M	I	P	M	P	M
CHM 611X(E2)	P	P	I	I	M	I	P	I	I	I
CHM 611X(E3)	P	I	I	I	M	M	P	M	P	M
CHM 6195	P	P	P	P	M	M	P	M	P	M
CHM 6190	I	I	P	M	P	P	P	M	P	M
CHM 6299	M	M	M	M	M	M	M	M	M	M
CHM 6112 (List A)	P	M	P	P	M	M	P	P	P	M

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1. Inorg	K2. inorg.	K3. inorg.	K4. inorg.	S1. inorg	S2. inorg	S3. inorg	S4. inorg.	V1 inorg.	V2 inorg
CHM 6113 (List A)	P	P	M	M	P	M	P	P	M	M
CHM 6114	P	P	M	P	P	M	M	P	P	M
CHM 6115 (List A)	P	P	M	M	P	M	P	P	P	M
CHM 6116 (List A)	M	P	M	M	P	M	P	P	M	M
CHM 6117 (List A)	M	P	M	M	P	M	P	P	M	M

*Elective Courses (E) (see 2.1 Inorganic Chemistry Track (Inorg.) Page 13)

4.2 *Organic Chemistry Track (Org.)*

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1. *Org.*	K2. *Org.*	K3. *Org.*	K4. *Org.*	S1 *Org.*	S2 *Org.*	S3 *Org.*	S4 *Org.*	V1 *Org.*	V2 *Org.*
CHM 6111	I	I	I	P	I	P	I	I	P	P
CHM 6121	P	P	M	P	P	P	P	M	P	P
CHM 6131	I	I	I	P	I	I	P	I	P	P
CHM 6141	I	I	I	I	I	P	I	I	I	P
CHM 612X(E1)	P	P	I	I	M	I	P	M	P	M
CHM 612X(E2)	P	P	I	I	M	I	P	I	I	I
CHM 612X(E3)	P	I	I	I	M	M	P	M	P	M
CHM 6195	P	P	P	P	M	M	P	M	P	M
CHM 6190	I	I	P	M	P	P	P	M	P	M
CHM 6299	M	M	M	M	M	M	M	M	M	M
CHM 6122 (LIST B)	P	M	P	M	P	M	M	P	P	M
CHM 6123 (LIST B)	P	P	M	M	M	P	P	P	M	M
CHM 6124 (LIST B)	P	P	M	P	P	M	M	P	P	M
CHM 6125 (LIST B)	I	P	P	M	P	P	I	P	P	M
CHM 6226 (LIST B)	P	P	P	P	P	M	P	P	M	M

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1. *Org.*	K2. *Org.*	K3. *Org.*	K4. *Org.*	S1 *Org.*	S2 *Org.*	S3 *Org.*	S4 *Org.*	V1 *Org.*	V2 *Org.*
CHM 6227) (LIST B)	P	M	P	P	M	M	P	P	M	M

*Elective Courses (E) (see 2.2 Organic Chemistry Track (Inorg.) Page 14)

4.3 *Analytical Chemistry Track (Anal.)*

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1. *Anal.*	K2. *Anal.*	K3. *Anal.*	K4. *Anal.*	S1. *Anal.*	S2. *Anal.*	S3. *Anal.*	S4. *Anal.*	V1. *Anal.*	V2. *Anal.*
CHM 6111	I	I	I	P	P	P	I	I	P	P
CHM 6121	I	P	I	I	I	I	I	I	I	P
CHM 6131	P	P	M	P	P	P	P	M	P	P
CHM 6141	I	P	I	P	I	P	P	I	P	P
CHM 613X(E1)	P	P	I	I	M	I	P	M	P	M
CHM 613X(E2)	P	P	I	I	M	I	P	I	I	I
CHM 613X(E3)	P	I	I	I	M	M	P	M	P	M
CHM 6195	P	P	P	P	M	M	P	M	P	M
CHM 6190	I	I	P	M	P	P	P	M	P	M
CHM 6299	M	M	M	M	M	M	M	M	M	M
CHM 6132 (LIST C)	P	M	P	M	P	M	M	P	P	M
CHM 6133 (LIST C)	P	P	M	M	M	P	P	P	M	M
CHM 6134 (LIST C)	P	P	M	P	P	M	P	P	P	M
CHM 6135 (LIST C)	P	P	P	M	P	P	P	P	P	M
STA 6220 (LIST C)	P	P	P	P	P	M	P	P	M	M
CHM 6137 (LIST C)	P	M	P	P	M	M	P	P	M	M

*Elective Courses (E) (see 2.3 Analytical Chemistry Track (Anal.) Page 16)

4.4 *Physical Chemistry Track (Phy..)*

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1. Phy.	K2. Phy.	K3. Phy.	K4. Phy.	S1. Phy.	S2. Phy.	S3. Phy.	S4. Phy.	V1. Phy.	V2. Phy.
CHM 6111	I	I	I	P	P	P	P	I	P	P
CHM 6121	I	I	I	P	P	P	P	I	P	P
CHM 6131	I	I	I	P	I	I	P	P	P	P
CHM 6141	P	P	M	P	P	P	P	M	P	P
CHM 614X(E1)	P	P	I	I	M	I	P	M	P	M
CHM 614X(E2)	P	P	I	I	M	I	P	I	I	I
CHM 614X(E3)	P	I	I	I	M	M	P	M	P	M
CHM 6195	P	P	P	P	M	M	P	M	P	M
CHM 6190	I	I	P	M	P	P	P	M	P	M
CHM 6299	M	M	M	M	M	M	M	M	M	M
CHM 6142 (LIST D)	P	P	M	M	P	M	P	P	P	M
CHM 6143 (LIST D)	P	P	M	M	P	M	P	P	P	M
CHM 6144 (LIST D)	M	P	P	M	P	M	P	M	M	M
CHM 6145 (LIST D)	M	P	M	P	P	M	P	P	P	M
CHM 6146 (LIST D)	P	P	M	M	P	M	P	P	M	M
CHM 6247 (LIST D)	P	P	M	P	P	P	P	P	P	M
CHM 6248 (LIST D)	P	P	P	M	P	M	P	P	M	M
CHM 6249 (LIST D)	M	P	M	P	P	M	M	P	P	M

*Elective Courses (E) (see 2.3 Analytical Chemistry Track (Anal.) Page 17)

Add a separate table for each track (if any).

5. Teaching and learning strategies applied to achieve program learning outcomes:

Describe teaching and learning strategies to achieve the program's learning outcomes in all areas.

Following the College Strategic Plan, the Graduates will be active learners with a comprehensive scientific and technological background in chemistry and related topics to enter a professional career and ethical values.

The strategic objectives of the university, college, and department, combined with the program goals, will be achieved through promoting collaboration, critical thinking, and ethical engagement. The program prepares graduates to address complex challenges and make meaningful contributions to their communities and industries. This comprehensive strategy ensures students are equipped to meet the program learning outcomes in knowledge, skills, values, autonomy, and responsibility.

The following initiatives will achieve the university and college's strategic goals and program goals.

At the beginning of each semester, the syllabus is given to the students, containing detailed information about the course (Content of the course, credit hours of the course, textbook information, method of evaluations, and office hours schedule).

- ✓ **The course distribution is done according to the specialists of Faculty Stuff and their wishes.**
- ✓ **At the beginning of the semester, a coordinator is nominated to coordinate with the female branch.**
- ✓ **The Duties of the Course Coordinator is:**
  - **Distribution of time according to Course Contents. Preparation of the exercises, Midterm Exams, and Final Exam.**
  - **The follow-up of the course progress through periodic meetings with the course teacher in another branch (Male or Female).**
  - **Evaluate the Midterm Results and overcome problems that appeared from these evaluations.**
- ✓ **Collecting the Course Reports**
- ✓ **Uploading the Course Folder**
- ✓ **Annual Report is prepared Annually**
- ✓ **Student Surveys of All Courses.**
- ✓ **Teaching Stuff Evaluations of the Program**
- ✓ **Annual Faculty Staff Performance Evaluations.**

The previous items provided good teaching and learning strategies for achieving Program Learning Outcomes. The department monitors all to ensure that teaching quality standards match the desired and required values.

5.1. Teaching and Learning Strategies.

5.1.1. Active Learning Techniques

- **Collaborative Group Projects: Students work in diverse teams to tackle complex chemical reactions and materials synthesis and characterization. Each project requires them to analyze a real-world issue relevant to chemistry and its impact on the environment to develop and optimize suitable synthetic methods, characterization, and a greener environment using Chemistry concepts and fundamentals. This promotes analytical and problem-solving skills based on study track (S3) while enhancing teamwork and communication.**
- **Peer Teaching Sessions: Organize structured peer-led review sessions where students take turns explaining critical concepts to their classmates. This method reinforces their understanding and hones their ability to communicate their topics clearly and accurately based on the study track (S4).**

5.1.2. Project-Based Learning

- **Real-World Problem Solving: Assign mini-projects (CHM 6190, CHM 6195) that require students to search and critique some published reports on different topics addressing current societal challenges, such as optimizing resource allocation in healthcare or utilization of sustainable**

resources in creating Saudi technology. This approach integrates theoretical knowledge with practical application based on the study track (S1).

- Interdisciplinary mini Projects: Encourage students to collaborate with peers from other disciplines (e.g., biology, physics) to explore how chemistry can be applied across various fields, illustrating its versatility based on the study track (K1, K2, K4).

5.1.3 Technology Integration

- Software Training Workshops: Offer hands-on workshops on using Chemistry software tools, such as ACDlab, Chemoffice, Hyperchem, and and MOE. Students learn to apply these tools for data analysis and simulations, thereby developing their proficiency in utilizing technology based on the study track (S4).
- Online Collaboration Platforms: Utilize platforms such as Google Workspace or Microsoft Teams to facilitate group work and discussions. Students can collaborate on projects, share resources, and provide peer feedback, enhancing their engagement and teamwork skills.

5.1.4. Inquiry-Based Learning

- Research Assignments: Assign students to conduct literature searches on specific chemistry topics, requiring them to appraise sources and synthesize findings into a cohesive report critically. This builds their research skills and ability to analyze diverse materials based on the study track (S3).
- Problem Posing and Exploration: Provide opportunities for students to formulate their own chemistry questions based on real-world scenarios. This approach encourages independent thinking and critical analysis based on the study track (V2), allowing students to explore topics that pique their interest.

5.2. Curricular Activities

5.2. 1. Workshops and Seminars

- Guest Lectures and Industry Panels: Invite professionals from various fields to share their experiences and discuss how they use chemistry and its relevant topics in their careers. This exposure helps students understand the relevance of their studies and the ethical considerations involved in applying chemistry and relevant topics based on the study track (K2, V1).
- Skill Development Workshops: Provide workshops on specific skills, such as spectroscopic data analysis, environmental analysis, and ethical decision-making. These sessions can include case studies that prompt students to consider the societal impact of their chemistry background work.

5.2. 3. Assessment and Feedback

- Formative Assessments: Implement regular quizzes, homework, Exams, presentations, and project reviews to provide ongoing feedback to students. This helps them assess their understanding and encourages self-evaluation of their learning based on the study track (V2).
- Portfolio Development: Students should be required to create a portfolio documenting their projects, research papers, and reflections on their learning journey. This portfolio should showcase their skills and encourage reflective practice.

5.3. Extra-Curricular Activities

5.3.1. Chemistry/Science Clubs

- Study Groups: Establish student-led study groups. These initiatives create a supportive learning environment where students can collaborate on challenging topics and help each other succeed based on the study track (V2).
- Outreach Initiatives: Organize community outreach programs, such as workshops for underrepresented groups or local high school students. These programs promote responsible citizenship and ethical engagement with the community based on the study track (V1).

5.3.2. Conferences and Competitions or national specific exam

- **Academic Conferences**: **Support students in attending and presenting at academic conferences, allowing them to share their research, network with professionals, and improve their communication skills based on the study track (V1, V2).**

5.3.3. Leadership Development

- **Mentorship Programs**: **Pair students with faculty or industry mentors who can guide academic and career choices. This helps students develop a sense of responsibility and ethical decision-making based on the study track (V1).**
- **Leadership Roles in Group MINI-Projects**: Assign students roles within their mini-project teams that allow them to take on leadership responsibilities. This encourages adaptability and the development of leadership skills necessary for professional success **based on the study track** (V2).

The policy of Teaching and learning **should be planned, delivered, and followed up by the values and principles achieving outstanding teaching and learning practices:**

- **Academic staff share and uphold the values and principles set out in the planned teaching and learning as well as delivered to achieve outstanding teaching and learning strategies.**
- **Academic staff receives training, guidance, and support, enabling them to contribute to outstanding teaching and learning practices.**
- **Students are encouraged and motivated to behave to facilitate their learning, development, and progression.**

The learning experiences and learning activities:

Teaching and learning should be a professional and motivating partnership between students and teachers

- **Teachers should be certain that their students understand and realize the learning objectives of their studies.**
- **Students should develop their progress in achieving their goals by sharing responsibility for their learning outcomes as the primary target.**
- **Teachers should develop the skills, confidence, and encouragement to become successful independent learners and prepare for practical life.**
- **Teachers should achieve the teaching and learning strategies by actively seeking new methods and approaches to motivate students to use and apply the technologies and other available resources to enhance the teaching and learning experience.**
- **The college should support the students and teachers with all the opportunities and resources to improve and develop their academic and teaching potential.**

Teachers are encouraged to collaborate to share best practices and support each other's development.
In addition, Supports for Students Independent Work has to achieve through the following examples:

1. **Provided Free Textbook to help and enrich the scientific knowledge**
2. **Motivate the students to use the Saudi Digital Library to prepare mini-reports.**
3. **Required Materials are submitted via Blackboard Classrooms to forward all Course materials, including a list of exercises, solutions for exams, etc. The students can use these materials independently to manage the course effectively.**
4. **At the beginning of each course, at least 6 office hours must be announced for the students. The teacher must discuss all course issues with the students.**
5. **Students encourage Mini-projects as an assessment—this assessment strengthens the students' independent work.**

6. Regarding the thesis, **Enlighten the student about all information relevant to his thesis title, tasks, duties, rights, the value of academic research, and the need to commit to his ethics,**

responsibilities, and methods. After finalizing all the formal procedures to register this thesis mentioned in the D section, the supervisor starts to comply with the tasks affiliated with supervising the student's thesis.

Supports for student independent work:

There are many supports for the independent scientific work of the students provided, some of which are listed as the following:

1. **Free WI-FI supported by the Deanship of Informatics technology inside the campus supplied to the students to**
   - **Use these facilities to review independently a part of a course, to prepare homework or an exam, or to access the (local) digital library (open computer labs) ;**
   - **Access the Saudi Digital Library (SDL) for free textbooks and knowledge resources via open computer labs. They read independently these resources and write reports on them;**
   - **Course Materials provided via Blackboard classrooms: The teachers use Blackboard classrooms to give students all kinds of materials related to the courses: syllabi, slides, lists of supportive textbooks, journals, articles relevant to the course taught, lists of exercises, solutions to exams, and homework, etc..... These materials can be used independently by students for the best management of the course;**
1. **At least six office hours provided by each teacher:**
   Each teacher has to choose in their timetable at least six office hours to discuss all course issues with students;
2. **Mini-projects and homework in some courses: The main goal of these assessment methods is to strengthen students' independence.**

6. Assessment Methods for program learning outcomes:

Describe assessment methods (Direct and Indirect) that can be used to measure the achievement of program learning outcomes in all areas.

The program should devise a plan for assessing Program Learning Outcomes (all learning outcomes should be assessed at least once in the program's cycle).

Direct Assessment Methods

6.1. Direct Assessment Methods

6.1.1. Exams and Quizzes

Midterm and Final Exams: Each semester will include a midterm and a final exam. These assessments will test students' understanding of fundamental chemistry principles and hypotheses based on the track study (K1, K2). The exams will include multiple-choice questions, reaction sequences, and theoretical questions, ensuring comprehensive material coverage.

Weekly homework/Quizzes: Short quizzes will be administered at the end of each week to evaluate students' grasp of recent topics. These quizzes will focus on analytical skills and problem-solving based on the track study (S1, S3), helping identify areas that may require further review before major exams.

6.1.2. Mini-Projects and Presentations

Research Papers: Assigned in second semester, students will draft a proposal for a research paper that involves conducting literature searches, critically appraising sources, and synthesizing findings related to a specific chemistry topic or application. This assessment will gauge their research abilities based on the track study (S3) and understanding of the background context and applications of chemistry (K2).

6.1.3. Software Assessments

Chemistry Software: during their study, students will focused on using mathematical software tools such as chemistry software in their courses based on their track study. Assessments will include practical

assignments where students demonstrate their ability to utilize these tools for data analysis, drawing, molecular modeling (S3, S4).

6.1.4. Peer and Self-Assessment

Peer Reviews: Throughout the program, students will engage in peer reviews for group mini-projects and presentations. This method encourages collaborative learning and accountability while allowing students to practice critical evaluation (V2).

Self-Reflection Journals: Students will maintain journals (personal records) throughout the program to document their learning experiences, ethical considerations, and self-evaluations of their performance (V2). These journals will be submitted at the end of each academic year for assessment, focusing on personal growth and reflection.

6.2. Indirect Assessment Methods

6.2.1. Surveys and Questionnaires

Student Feedback Surveys: At the end of each semester, students will complete surveys assessing their learning experiences, perceived skill development, and the effectiveness of instructional methods. The feedback collected will be used to adjust the curriculum and teaching strategies. In addition, they will assess their ability regarding all PLOs.

Exit Surveys: Conducted during graduation, these surveys will ask students to reflect on their overall educational experience and how well the program prepared them for their careers, particularly regarding ethical behavior (V1) and their ability to self-evaluate (V2).

6.2.2. Focus Groups

Alumni Focus Groups: Organized every two years, these focus groups will involve recent graduates discussing the relevance of the skills and knowledge gained in the program to their professional lives. Insights from these discussions will help evaluate the program's effectiveness and inform future curriculum development.

6.2.3. Course Evaluations

End-of-Semester Evaluations: Conducted regularly at the end of each semester, these evaluations will assess course content, teaching effectiveness, and overall student satisfaction. The results will provide indirect insights into the achievement of learning outcomes and inform potential improvements.

6.3. Assessment Plan Overview Cycle Structure

6.3.1. Assessment Frequency:

Each PLO will be assessed at least twice throughout the program, with one additional assessment conducted in related degrees, ensuring a comprehensive evaluation including mapping PLOs to courses.

Advanced courses will assess the advanced knowledge (K1, K2) and analytical skills (S1). Direct assessments will include quizzes, exams, and a group mini-project on advanced topics in chemistry.

Elective courses will assess advanced knowledge (K1, K2) and analytical skills (S1). Direct assessments will include quizzes, exams, and a group mini-project on specific advanced topics in chemistry based on the student's choice.

The thesis will assess advanced knowledge (K1, K2) and analytical skills (S1). Direct assessments will include discussion, preparation of the thesis, literacy surveys, and the obtained results.

6.3.2. Reflective Analysis:

Students will also submit a reflective analysis that evaluates their personal growth, learning outcomes from the experience, and their ability to assess their contributions and responsibilities (V2) critically. This analysis will encourage students to connect their practical experiences back to the theoretical frameworks studied throughout the program.

D. Thesis and Its Requirements (if any):

1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

According to Unified Policies of Graduate Studies in Saudi Universities (UGSP), *Regulations Governing Postgraduate Studies in Universities - Issued by University Affairs Council Resolution No. 2/9/1444* and its following the Executive rules at Imam Muhammad Ibn Saud Islamic University 3931-1441/1442- in University Council meeting 9, at 6/7/1442. And
(See https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf and https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law_2.pdf)

1- Requirements:

- ✓ **The male or female student may submit an application to register for a thesis project, according to the following:**
  1. **He/she must have completed all admission requirements. (After completing the first year with a GPA of 3.75, the student has the right to submit his/her desires to choose the supervisor of the thesis project).**
  2. **He/she must have passed at least 50% of the academic courses (The student has the right to submit the thesis project to the department, according to the student's desire for the minor and the possibilities.**
  3. **The GPA should not be less than (very good).**

2- Procedures of Registration of the thesis as well controls:

Following the Rules regulating the Registration, Writing, Printing and submission of the thesis (see: https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf, https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law_2.pdf).
Based on Chapter (8) Articles 43, p.33,34, of the Unified Policies of Graduate Studies in Saudi Universities (UGSP), *Regulations Governing Postgraduate Studies in Universities - Issued by University Affairs Council Resolution No. 2/9/1444,* and the Executive rules at Imam Mohammad Ibn Saud Islamic University 3931-1441/1442- in University Council meeting 9, at 6/7/1442.

3. Master's theses topics must be Novel and Original

- ***Novelty means the following:***
  a. The novelty of the topic is entirely or in most parts of the subject.
  b. Changing information, sources, and knowledge in a fundamental way affecting previous research.
- ***The novelty of the research tools dealt with Originality and innovation, which means the following:***
  a. Addressing an area that has not been previously discussed or completing the deficiency in what was previously discussed.
  b. Using new research tools that lead to unprecedented research results. In context, different results appear.
  c. Using the research tools known in advanced-
  d. Using theoretical knowledge to reach new practical applications.
- ***Active contribution to the development of knowledge means the following:***
  a. Reframing an existing knowledge, theory, or model in a new context or testing a theory in a framework new or testing a particular model in a new context to ensure its effectiveness.

b. Verify the validity of an existing model and re-evaluate it according to different conditions.
c. Criticize an existing knowledge, theory, or model scientifically, or prove the error of using these fields.
d. Extracting a new theory or knowledge through incorporating existing ideas.
e. Implementation of theoretical principles in an applied manner shows the challenges of practical application.
f. Experimental adapting of different phenomena to arrive at new theories.

4- Responsibilities and Procedures of Scientific Guidance:
https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf ***(Chapter 8, Articles 41, p. 32)***

1. Department council distribute the mission of scientific guidance for new students to faculty members during a period not exceeding four weeks from the start of the study. The Deanship of Graduate Studies shall provide a copy of it.
2. The scientific guidance for the thesis is calculated within the teaching load, at the rate of one hour for every two students.
3. The exact scientific advisor's specialization and the student's research field of interest shall be considered when assigning guidance.
4. The student is obligated to contact the scientific advisor at least once every month.
5. The scientific advisor follows up with the student and informs the scientific department about the interruption.
6. On the student's progress, the scientific advisor submits a report to the department head at the end of each semester and the extent of his seriousness in choosing the thesis subject and preparing the research plan.
7. The advisor's reports shall be influential in considering the student's request for postponement, additional opportunity, or Presentation of a research idea.

The scientific department holds scientific meetings between professors and graduate students; Learn about scientific interests and research.

2. Scientific Supervision:

(The regulations of the selection of the academic supervisor and their responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

See: https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf
Chapter 8, Article 45- 52, including IMISU executive rules (3931-1441/1442-, 9th, 6/7/1442). **All regulations will be under action and follow.**

1- Theses are supervised by professors and associate professors from the Chemistry Department. The assistant professor may supervise the master's theses if two years have passed since his appointment to this degree with at least two papers - in his field of specialization - of published or accepted research.

2- Scientific dissertations may be supervised by supervisors with outstanding experience and scientific competence in research from non-faculty members of the university by a decision of the University Council based on the recommendation of the department council, college council, and the council of the Deanship of Graduate Studies. In addition, an assistant supervisor from the department will be.

3. A faculty member from other departments may assist in supervising the thesis, depending on the nature of the thesis. The Principle Supervisor has to be from Chemistry Department.

The Supervisor Responsibilities, procedures/ mechanisms of the scientific supervision and follow-up:
Supervisor Responsibilities*:*

1) The supervisor's role is to direct the learning process and learning outcome of CHM 6299 and not to provide specific knowledge on the thesis topic.
2) To provide the student with sufficient background on the topics. Searching relevant literature

3) 3) To determine the aims of his/ her work, the student will carry out the methodological process independently.
4) To enlighten the student about all information relevant for his thesis title, his tasks, duties, rights, the value of the academic research, and the need to commit to his ethics, responsibilities, and methods.
5) To inform the student about the university rules and regulations following the Deanship of High Graduates Studies website.
6) To ensure that the thesis topic is serious, authentic, original, and entirely in compliance with the Kingdom rules and university strategies.
7) To provide the student with advice and assistance in solving the problems and research difficulties during the thesis preparation.
8) To submit a bi-annual report clarifying the student thesis progress, difficulties, and estimated research work to the next period,
9) To guide the student towards accuracy and precision in the thesis and experiments' writing context and ensure the credibility of the thesis research.
10) To encourage the student to publish a part or parts of his thesis, as one of the priorities, derived from the thesis, in good impacted scientific journals, participation in conferences and, scientific research activities.
11) To prepare the student for pre-presentation, including the thesis topic, aiming to develop the student's performance.
12) To follow the administrative procedures relating to the Committee of Discussion and scheduling the discussion/defense time in coordination with the Discussion /defense Committee
13) Follow-up the procedures of the corrections suggested by the members of the Discussion/defence Committee.

Responsibilities and duties of the Co- supervisor

1) To attend weekly meetings conducted between the main supervisor and the student.
2) To collaborate with the supervisor to check the student's progress and follow up steps or suggest proposals that can facilitate the completion of the scientific thesis.
3) To assist the supervisor in providing all the requirements and tools related to the thesis.

The Mechanisms of the scientific supervision and follow-up:

1) Regular meetings and discussions with the supervisor are organized.
2) The supervisor allocates weekly office hours advertised on his /her own timetable to help the M.Sc. student with any academic problems/difficulties.
3) The supervisor allocates Laboratory hours arranged with his /her student to guide the M.Sc. student on any laboratory problems and follow up on the Thesis progress.
4) To submit a bi-annual report to the head of the department, clarifying the student progress.

The mechanism for verification of the standards comprises supervision and follow up:

1) **Strategies for Obtaining Student Feedback on Effectiveness of supervising:** Students are asked to fill in an anonymous questionnaire on their theses assessment at the end of the Thesis. The forms will analyze and the summary of results posted to the head of the department for evaluation.
2) **Other Strategies for Evaluation of Supervising by the Program/Department Supervisor:** At the end of each semester of the Thesis, the supervisor should complete a report, including a summary of student questionnaire responses appraising progress and identifying changes that need to be made if necessary.
3) **Processes for Improvement of Supervising:** Student evaluations and the supervisor's report will be used to decide improving parameters.
4) **Verification of Standards of Student Achievement:** The Thesis is examined by two external referees. A thesis committee will assess the written thesis and the presentation.

Planning arrangements for periodically reviewing Thesis work progress and planning for improvement: Twice annually following the Teaching, Learning, and Supervising Assessment Process adopted by the Department Council.

3. Thesis Defense/Examination:

(The regulations for selection of the defence/examination committee and the requirements to proceed for thesis defence, the procedures for defence and approval of the thesis, and criteria for evaluation of the thesis)

Based on Regulations Governing Postgraduate Studies in Universities - Issued by University Affairs Council Resolution No. 2/9/1444, and
See: https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf.
Chapter 8, entitled the Defence/Examination committee article 53- 61, all regulations will be under the action and follow.
The discussion committee (Thesis Defence) shall be based on a decision from the Council of the Deanship of Graduate Studies and college.

A. The following conditions for the formation of the discussion committee:

the requirements to proceed for thesis defence

- **a)** The validity of the thesis for discussion based on the supervisor's report. (Article 8-item 51)
- **b)** The master's student must pass all the courses of the program.
- **c)** Compliance with the provisions of **Article 36-page 27** of the Executive Regulations of Imam University.

B. The regulations for selection of the defence /examination committee

1. The College Council, based on the recommendation of the Department Council, recommends the formation of discussion committees following Articles (54 and 55) and their rules, followed by submission to the Deanship of Graduate Studies Council within a period of no more Exceeding three weeks from the date of the college council session, according to the Council of the Deanship of Graduate Studies approved forms.
2. The recommendation must include a reserve member to form a discussion committee.
3. Preliminary approval from the examiner must take before recommending his membership in the discussion committee.
4. If the recommendation of the faculty council is different from the recommendation of the department council, it shall abide by what is stated in the text the executive rule for **Article 64** p. 46 of the Executive Regulations - Imam University.
5. After the approval of the Council of the Deanship of Graduate Studies to form a discussion committee, the thesis is delivered through College - Vice Deanship of Graduate Studies to Discussion Committee Members.
6. The discussion/Defense committee for M.Sc. requires the following:
    a. The supervisor shall be the committee reporter.
    b. The number of its members is odd.
    c. The number of committee members shall not be less than three from among the faculty members, and the supervisor, co-supervisor, shall not represent the majority in it.
    d. The conditions for supervising Theses shall apply to the members of the committee.
    e. At least one of the committee members should be one of the professors or associate professors.
    f. It takes its decisions with the approval of at least two-thirds of the members.

C. The procedures for defence and approval of the thesis :

1. The member of the discussion committee submits a report on the thesis to the head of the department, stating that it is valid for discussion or not. The period of examination of the thesis by a member of the discussion committee does not exceed one month for the master's thesis from the date of its receipt, and the department has the right to delay the discussant for the maximum period recommending the transfer of the discussion to the reserve member.

2. The period between the decision of the Deanship of Graduate Studies Council to form a discussion committee and holding the discussion should not exceed a maximum of four months.
3. If the thesis's decision is not valid for discussion and not accepted for amendment unanimously, it shall be applied to the student paragraph (9) of Article (26) and its executive rule. If unanimity is not achieved, the case is moved to the department council to take appropriate decision, provided that the determination of the invalidity of the thesis has to be by the majority stated Paragraph (5) of Article (54) of these Regulations.
4. The principal supervisor completes the form for setting the discussion date of the approved thesis by the Deanship of Graduate Studies. It is approved by the head of the department and the vice dean of the College for Graduate Studies and Scientific Research. The department announces for Discussion date in the places designated for this in the College and through other available channels (website of College), providing the Deanship of Graduate Studies with a copy of the announcement of the date of the discussion.
5. If a member of the discussion committee apologizes (after informing him of the thesis's validity), he shall be compensated by the member. The reserve is based on the recommendation of the department council and the approval of the College Council, and only the discussion will take place. After the reserve member submits a report on the thesis stating that the message is valid or not, according to the period stipulated in Paragraph (7) of Executive Rule IMISU.

D. The procedures for defence and approval of the thesis:

1) All the Discussion/Defense members submitted to the head of the department within one week of The discussion date a signed report including one of the following recommendations*:
   a. ***Acceptance*** (**Excellent, Good**) of the thesis **and recommendation to award** the degree.
   b. ***Acceptance*** of the thesis **(Satisfactory, Sufficient**), **with some modifications**, **without discussing** it again and authorizing one of the members to recommend granting the degree after making sure that these amendments have been taken within time, not exceed three months from the date of the discussion, and the University Council may make an exception.
   c. ***Completing the deficiencies*** **(Satisfactory, Sufficient**), in the thesis and **re-discussing them during the period determined by the Council of Graduate Studies** based on the recommendation of the relevant department council, provided that it does **not exceed one year from the date of the discussion.**
   d. ***Not accepting the thesis*****.(Insufficient)**

**** The thesis and the presentation. are graded on a 1-5 scale:***

1. **Insufficient**
2. **Sufficient**
3. **Satisfactory**
4. **Good**
5. **Excellent**

A separate sheet for the Thesis Evaluation will be attached, describing the Evaluation details.

2) Each member of the Discussion committee has the right to present his/her point of view or opinions Reservations in a detailed report to each department head and the dean of graduate studies within a period not exceeding Two weeks from the date of the discussion.

E. Approval of the thesis

a) The department head has to submit the discussion committee and Department council report for awarding the degree to the Dean of Graduate Studies within a period not exceeding three weeks from the date of the discussion.
b) The Dean of Graduate Studies submits the recommendation to grant the degree to the University Council for decision.

F. Criteria for evaluation of the thesis*:

Guidelines for Evaluation of Master of Science in Chemistry Thesis and Awarding Marks:

1. **Independent Scientific Thinking/Originality: it might be by Evaluation of the following:**
   - The Significant independent contribution of the student to the outcome of the thesis,

- Demonstration of any Scientific Originality in the thesis or any new ideas or established ideas by a new approach.
- The novelty and importance of the obtained results and conclusion.

2. **General Scientific Competence: it might be by Evaluation of the following:**
   - The familiarity of the student with the literature on the subject of the thesis.
   - The aims of the thesis is clearly formulated.
   - The discussion and methods as well techniques are discussed properly.
   - The literature and methods used are adopted for the subject of the thesis.
   - The research as well the context of the thesis have been carried out and written Carefully.
3. **Methodological Competence: it might be by Evaluation of the following:**
   - The student's knowledge, understanding, and comprehension of techniques, equipment, laboratory experiments, and precautions to be provided.
   - The usefulness of applying the methods, techniques, and tools for future studies and work.
4. **Logical Coherence and Quality of Presentation:**
   - The logic and appropriate structure and style of the thesis.
   - The clarification of the results and conclusion during the presentation
   - The response and answering of the questions at the end of the presentation.
   - The formal requirements for literature (sources), tables, and experimental details match the standard of writing the thesis according to IMSIU requirements.
   - The scientific and language of the thesis is correct and comprehensive.
5. **Work Process: from the previous items, the evaluator can determine the following:**
   - The student has done the research thesis with dedication and care.
   - The student has acquired the necessary knowledge from doing research and reading the literature,
   - The research has been done and written independently.

The thesis and the presentation. are graded on a 1-5 scale:
1. Insufficient 2. Satisfactory 3. Good 4. Very Good 5. Excellent
A separate sheet for the Thesis Evaluation will be described the Thesis Evaluation RUBRIC.

H. Student Admission and Support:

1. Student Admission Requirements:

In addition to the conditions mentioned in the Chapter 5, article (13) p. 10 of the Unified Policies of Graduate Studies in Saudi Universities (UGSP) and Regulations Governing Postgraduate Studies in Universities - Issued by University Affairs Council Resolution No. 2/9/1444
(see https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf

an applicant to the Master of Science in Chemistry Program should fulfill the following requirements:

a) Have a bachelor's degree in chemistry from an accredited Saudi university or a recognized international university with a cumulative average of not less than 3.75 out of 5 or its equivalent.
b) The Council of the Deanship of Graduate Studies may accept those with good grades based on the recommendation of the Department Council and the approval of the College Board.
c) Passing the admission test conducted by the department or obtaining a score of no less than 500 in the GRE Subject Chemistry or equivalent in the corresponding local tests.

d) Obtaining at least a score of 45 in the TOEFL- iBT test or its equivalent in the equivalent and recognized international and local tests.

e) If the applicant holds a bachelor's degree in chemistry from another recognized university. In that case, his / her admission to this program is required to pass some supplementary courses as determined for the applicant by the department council and following **Article 18** of the General Unified Regulations for Postgraduate Studies in Saudi Universities.

It is permissible to accept an applicant with a bachelor's degree in chemical technology, chemical engineering, or chemical laboratories. This is required to pass supplementary courses - within a period of no more than three semesters - determined by the department council (**Chapter 5 Article 18**)

2. Guidance and Orientation Programs for New Students:

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

None

3. Student Counseling Services:

(Academic, professional, psychological and social)

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level)

- Students will be assigned an academic advisor Chemistry Graduate Committee (CGC), to give them the appropriate academic counselling and support in selecting courses and locating resources.
- The lecturer for each course allocates 6 office hours per week advertised on his /her own timetable and is reserved as part of his/her teaching schedule to help the students with any academic problems/difficulties.
- The Student can get individual consultation and academic advising appointments with teaching staff via e-mail or phone calls and the department website.
- A list of teaching staff members with their room numbers, phone numbers, and e-mail addresses is given in the M.Sc Chemistry Handbook and Department website.
- After completing the first semester and 50% of the academic courses with a GPA of 3.75, the student has the right to submit his/her desires to choose the supervisor of the thesis project joining with Master Thesis Proposal. The department council can nominate the Thesis supervisor and assistant supervisor according to the department's capability. https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law_2.pdf
- Visiting the University website, students get some guidance and advice on their academic queries.
- University support services include careers, financial advice, housing, counseling, etc.
- Excellent library and digital library facilities.
- University, college, and department handbooks provide information about the course structures, university regulations, etc.
- University support services for psychological problems in the medical center.
- University support services social events for students during the academic year.
- Feedback is provided for all assessments.

The departmental advisor can provide information, advice, support concerning accommodation, emotional difficulties, assessments of needs, and support related to disability, student funding, general welfare, student discipline, and complaints.

4. Special Support:

(Low achievers, disabled, and talented students).

The Master Program in Chemistry (via the department head) and the University of Imam Mohammad Ibn Saud Islamic University provide care and support for disabled students.

Master programs and institutions pay due attention to students with special needs (e.g., disabled students). They are provided with special care. Their special needs are considered when building access, especially during exams.

The main building of the College is designed to meet the necessities of students with special needs and offers facilities such as:

- **Six car parking**
- **Special pathway**
- **eight lifts on each floor**
- **Ten toilets..**

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff:

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor	Chemistry	Organic Chemistry		1	0	1
		Physical Chemistry		1	0	1
		Analytical Chemistry		1	0	1
		Inorganic Chemistry		1	0	1
Associate Professor	Chemistry	Organic Chemistry		1	1	2
		Physical Chemistry		1	1	2
		Analytical Chemistry		1	1	2
		Inorganic Chemistry		1	1	2
Assistant Professor	Chemistry	Organic Chemistry		1	0	1
		Physical Chemistry		1	0	1
		Analytical Chemistry		1	0	1
		Inorganic Chemistry		1	0	1
Technicians and Laboratory Assistants	Chemistry			-	1	1
Administrative and Supportive Staff	Chemistry			1	1	2
Others (specify)				0	0	0

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources:

Learning resources required by the program (textbooks, references, e-learning resources, web-based resources, etc.)

For the planning and acquisition of Learning Resources, CGC proceeds as follows:

- **Teaching and learning resources are provided via the central library**
- **For the planning and acquisition of learning resources, the CGC proceeds as the following mechanism:**

STEP 1: **For each course, the CGC assigned a faculty members committee headed by Course Responsible for providing the following:**

- ✓ **Course description (preliminary syllabus),**

- ✓ **Recommend Lists of Required Textbooks, Essential reference materials (Journals, Reports, etc.), Recommended Textbooks and Reference Materials (Journals, Reports, etc.), Electronic Materials (e.g., Websites, Blackboard, etc.), and other learning materials such as Computer-based Programs and software.**

STEP 2: CGC collects learning resources for all courses and submits the required lists to the department head for approval by the department council.

STEP 3: After the department council approves, the department head asks the Dean of the College to provide the Required lists of Learning Resources through the university's central library and Central Chemical Stores for chemicals and laboratory requirements.

***Teaching and learning resources are provided via the central library and Saudi Digital Library (SDL)**

2. Facilities and Equipment:

(Library, laboratories, classrooms, etc.)

For the planning and acquisition of resources for Library, Laboratories, and Classrooms, the CGC acts as follows:

STEP 1:

Evaluation of the locals assigned for graduated programs: Library (equipped with textbooks and references provided by the Central Library), Laboratories (equipped with appropriate instruments, chemicals, and glassware), and classrooms.

STEP 2:

In the shortage case of supplies, the CGC will report that to the head of the Department to ask Dean College to provide the Required lists of such supplies through the University Central Library and Central Chemical Stores for chemicals and laboratory requirements.

3. Procedures to ensure a healthy and safe learning environment:

(According to the nature of the program)

The Masterr Program in Chemistry has special arrangements in classrooms and the laboratories for theses, as follows:

A: *Classrooms Section (Lectures)*

To maintain a healthy and safe environment in a university classroom, here are some arrangements that should be implemented and it is under the responsibility of the General Directorate of Technical Affairs at the university:

1. **Adequate Ventilation: Ensure proper ventilation in the classroom to maintain good air quality. Regularly clean and maintain air conditioning systems and provide proper ventilation to minimize the accumulation of dust allergens. If possible, open windows to allow fresh air circulation.**
2. **Proper Lighting: Ensure the classroom is well-lit with appropriate lighting to create a comfortable learning environment. Use natural lighting whenever possible and provide adjustable artificial lighting to accommodate individual preferences.**
3. **Comfortable Seating: Provide comfortable and ergonomic seating arrangements that support good posture and minimize discomfort. Regularly inspect and maintain chairs to ensure they are in good condition.**
4. **Classroom Layout: Arrange desks and chairs for adequate student spacing. Consider maintaining physical distancing guidelines to minimize the risk of spreading illnesses.**

5. **Fire Safety Measures: Install smoke detectors, fire extinguishers, and fire alarms in the classroom. Mark emergency exits and ensure they are easily accessible and unobstructed. Conduct regular fire drills to familiarize students and staff with evacuation procedures.**
6. **Electrical Safety: Regularly inspect electrical outlets, power cords, and other electrical equipment to ensure they are in good condition. Avoid overloading electrical circuits and encourage the prompt reporting of any electrical issues.**
7. **Hygiene Practices: Promote good hygiene practices in the classroom, such as encouraging students and staff to clean their hands regularly. Provide hand sanitizers or handwashing facilities in accessible locations. Encourage proper respiratory etiquette, including covering coughs and sneezes with tissues or elbows.**
8. **Regular Cleaning: Implement a regular cleaning schedule for the classroom. Clean frequently touched surfaces like desks, chairs, door handles, and shared equipment. Use appropriate cleaning products and follow recommended disinfection protocols.**
9. **Safety Training: Provide safety training to students and staff, including emergency procedures, evacuation drills, and awareness of potential hazards. Educate individuals about health and safety guidelines specific to the classroom environment.**
10. **Communication and Signage: Communicate safety guidelines and protocols to students and staff. Display signage in visible locations reminds individuals of hygiene practices, physical distancing, and other safety measures.**

B. The laboratories :

To maintain a healthy and safe environment in university laboratories, some arrangements should be implemented and is under the responsibility of the General Directorate of Technical Affairs at the university and in collaboration with the Chemistry Department as the following:

- **In n each laboratory, a list of safety and precautions is provided.**

1. **Each lab has proper ventilation to maintain good air quality. Regularly clean and maintain air conditioning systems and provide adequate ventilation to minimize the accumulation of dust allergens and chemical vapors.**
2. **Each lab has a sufficient fuming hood for chemical experiments.**
3. **Fire Safety Measures: Install smoke detectors, fire extinguishers, and fire alarms in the laboratories. Mark emergency exits and ensure they are easily accessible and unobstructed. Conduct regular fire drills to familiarize students and staff with evacuation procedures.**
4. **Electrical Safety: Regularly inspect electrical outlets, power cords, and other electrical equipment to ensure they are in good condition. Avoid overloading electrical circuits and encourage the prompt reporting of any electrical issues.**
5. **Hygiene Practices: Promote good hygiene practices in the lab., such as encouraging students and staff to clean their hands regularly. Provide hand sanitizers or handwashing facilities in accessible locations.**
6. **Encourage proper respiratory etiquette, including covering coughs and sneezes with tissues or elbows.**
7. **Encourage the use of laboratory safety masks and Eye Protection in the laboratories.**
8. **Regular Cleaning: Implement a regular cleaning schedule for the lab. After the practical session ends, clean frequently touched surfaces, such as benches, chairs, door handles, and**

shared equipment. Use appropriate cleaning products and follow recommended disinfection protocols.

9. Safety Training: Provide safety training to students and staff, including emergency procedures, evacuation drills, and awareness of potential hazards. Educate individuals about health and safety guidelines specific to the classroom environment.
10. Communication and Signage: Communicate safety guidelines and protocols to students and staff. Display signage in visible locations reminds individuals of hygiene practices, physical distancing, and other safety measures.

- ❖ Equip the lab with instruments that serve the practical sessions.
- ❖ In each lab, there are containers for solid waste, liquid waste, and crushed glasses marked with special colors for each.
- ❖ Each lab has a small pharmacy for first aid in case of an accident in the entry of each lab and inside the lab, a table contains the phone numbers for:

a, Medical Centre

b, Safety and Protection

c, Ambulance

d, Head of Department

- ❖ In each lab, the rules, conditions, safety mechanisms, and list of Risks and safety precautions according to the Merck Catalogue are hanging.
- ❖ A plan has been designed for students escaping from the labs. If any accident happened (fire, explosion, chemical bottle break, chemical hazard compound falls, etc.…)
- ❖ An emergency tool inside each lab.

G. Program Quality Assurance:

1. Program Quality Assurance System:

Provide a link to the quality assurance manual.

دليل ضمان الجودة في كلية العلوم - OneDrive (sharepoint.com)
https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EVPGffZshIlOtwp896mzTTEB23Z71rrZAk1fVIXqUH-cHA?e=o2rcld
دليل ضمان الجودة في كلية العلوم - OneDrive (sharepoint.com)
https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EZA2RBjov-dFj1uzGyvHQN8BxmRp20mCEwZ1oWr8wJsbvQ?e=MhYenb

Program review and its development is periodically assessed through the following processes:

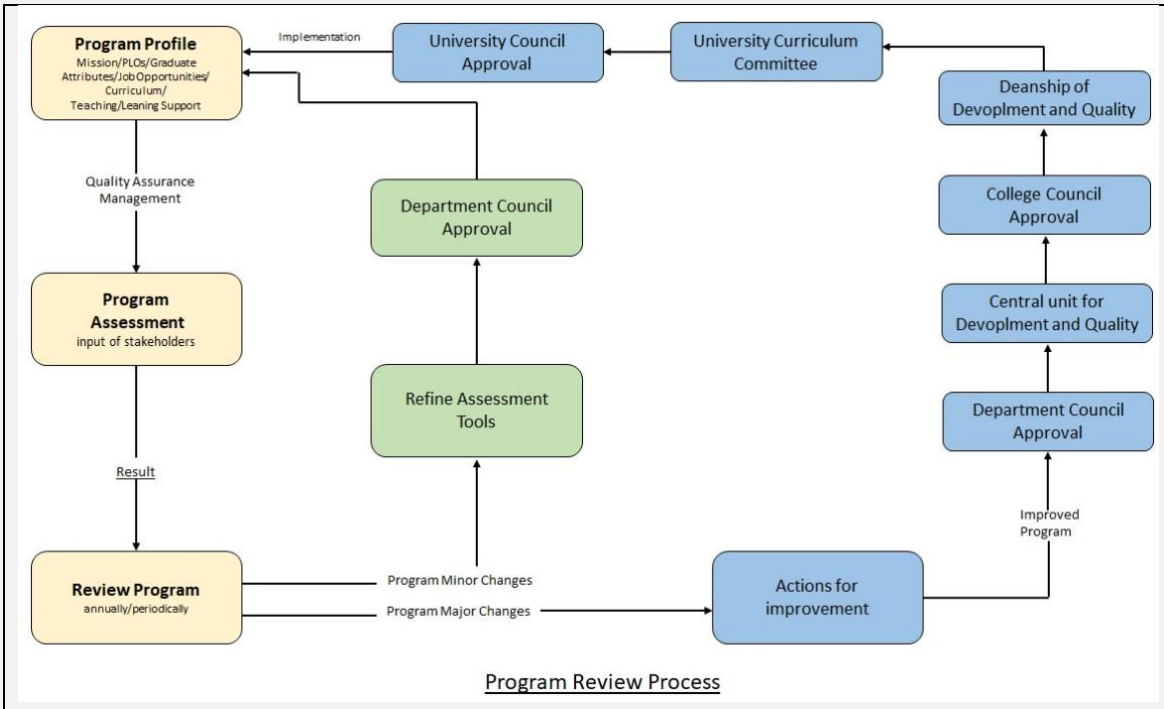
- ✓ Courses reports are submitted to the Course Responsible every semester.
- ✓ Course Responsible carries out a final review/audit of course documentation (Course e-portfolio) to ensure teaching schemes, assignments, and examination papers are relevant, current, and appropriate.
- ✓ Course Responsible with appropriate teaching staff committee is in charge of assessment and modification proposals.

- ✓ Course Responsible reviews the course reports and reports the findings, opinions, and recommendations for the Chemistry Graduate Committee (CGC).
- ✓ Course Responsible develops, in consultation with concerned teaching staff (Course team) and department quality unit (DQU), a Course action plan proposals (based on student feedback, external assessor report, current and previous Course reports, any other feedback), with a conclusion reached, forward to Chemistry Graduate Committee (CGC).
- ✓ Collecting and scoring the student's work and exams, including the thesis defense results, concluded. Course action plan proposals from CRs are summarized and submitted to Program Responsible (head of the department) by Chemistry Graduate Committee (CGC), supported by a short brief of the Statistics and Data Analysis Unit (SDAU) findings and remarks in the form of a semester report [(analysis; score average; description statistics (graphs, percentages, means)]. And submit it to the Program Responsible (head of the department).
- ✓ Quality Unit of Department (QUD) conducts and analyzes surveys' opinions about the courses and the program and forwards a final report to the department's head.
- ✓ Program Responsible (head of the department) reviews the final reports from the Quality Unit of Department (QUD), Reports submitted by the Chemistry Graduate Committee (CGC) and makes appropriate decisions after approving the department council. [appropriate changes might be minor in the:
  - Teaching Strategies
  - Curriculum Courses Contents
  - Others factors based on teaching/learning assurance quality process.
  - The proposals submitted by the previous committees
- ✓ Monitor a global review for the development of the program periodically every five years if necessary.
- ✓ The five-year periodic self-study report is the last step in evaluating the program that leads to the improvement of the program based on all assessments that have been done previously..
- ✓ A continuous improvement is a reflection of Teaching/Learning Quality Assurance Process, illustrated in the following diagram

Involving all faculty members at the department's level, expanding to be active members inside Quality Unit (CDQU) in the daily quality activities and responsibility including review and assessment of Program Quality. This management permits to configure a sound and active governance, accountability system leading to establish a process-centric culture through the implementation of quality management systems and building internal competencies for continuous quality improvement and sustainability touching all daily activities of the Department community.

The program's assessment coordinator should share the report with all staff, providing timely feedback and comments.

All the previous processes follow the Teaching\Learning Quality Assurance Process Diagram:



Program Review Process

2. Program Quality Monitoring Procedures:

- ✓ **At the end of each semester, the instructor should complete a Course Report including a summary of student questionnaire responses, appraising progress, and identifying changes (course content, and or textbooks and or references) that need to change or modify, if necessary.**
- ✓ **Course Responsible develops, in consultation with concerned teaching staff (Instructors, Course team) and department quality unit, a Course action plan (based on: student feedback, external assessor report, current and previous Course reports, any other feedback) and submitting it to the head of the department for decision for minor or major changes in the course for an eventual improvement.**
- ✓ **Students are encouraged to fill in an anonymous questionnaire on their assessment of the course at the end of the course. The forms will be analyzed, and the summary of the results will be reported to the head of the department for evaluations and to make a decision.**

3. Procedures to Monitor Quality of Courses Taught by other Departments:

N. A.

4. Procedures adopted to ensure consistency between the program's sections (male and female sections, if any).

The Department of Chemistry adopted the following processes to Ensure consistency between the Main Campus and Branches.

- There is a Course Responsible (CR) responsible for the courses' management, delivery, and assessment in both branches.

- The main duties of CR are ensuring the course delivery conforms to the requirements of the course specifications and the course common syllabus in both branches.
- There is a second examiner for each course's final exam, which follows a form adopted in the department council.
- The final exam for each course is unique for Male and Female branches.
- The instructor wrote a course report and submitted it for Course Responsible for writing a global Course report, supported with recommendations about the strength or weakness (based on student feedback, external assessor report, current and previous course reports, any other feedback) in both branches.
- The Program manager follows all the processes through CGC and Course Responsible jointly.

5. Assessment Plan for Program Learning Outcomes (PLOs):

Time Plan for Assessing Program Learning Outcomes (PLOs)

A. ***Inorganic Chemistry Track (Inorg.)***

.1447 - 1446 2026-2025	.1446 - 1445 2025-2024	PLOs	Domain
		K1. Inorg.	Knowledge and Understanding
		K2. Inorg.	
		K3. Inorg.	
		K4. Inorg.	
		S1. Inorg.	Skills
		S2. Inorg.	
		S3. Inorg.	
		S4. Inorg.	
		V1. Inorg.	Values, Autonomy, and Responsibility
		V2. Inorg.	

B. ***Organic Chemistry Track (Org.)***

.1447 - 1446 2026-2025	.1446 - 1445 2025-2024	PLOs	Domain
		K1. Org.	*Knowledge and Understanding*
		K2. Org.	
		K3.Org.	
		K4.Org.	
		S1. Org.	*Skills*
		S2. Org.	
		S3. Org.	
		S4. Org.	

		V1. Org.	Values, Autonomy, and Responsibility
		V2. Org.	

C. Analytical Chemistry Track. (Anal.)

.1447 - 1446 2026-2025	.1446 - 1445 2025-2024	PLOs	Domain
		K1. Anal.	Knowledge and Understanding
		K2. Anal.	
		K3. Anal.	
		K4. Anal.	
		S1. Anal..	Skills
		S2. Anal..	
		S3. Anal.	
		S4. Anal.	
		V1. Anal..	Values, Autonomy, and Responsibility
		V2. Anal.	

D. Physical Chemistry Track (Phy.)

.1447 - 1446 2026-2025	.1446 - 1445 2025-2024	PLOs	Domain
		K1. Phy	Knowledge and Understanding
		K2. Phy.	
		K3. Phy.	
		K4. Phy.	
		S1. Phy.	Skills
		S2. Phy.	
		S3. Phy.	
		S4. Phy.	
		V1. Phy.	Values, Autonomy, and Responsibility
		V2. Phy.	

5. 1. IMSIU's mission

The mission of IMSIU is to nurture the intellect, creativity and moral values of men and women for leadership and service to society through high-quality learning and research. Guided by its Islamic traditions, IMSIU integrates academic excellence and Islamic commitment to build a peaceful, prosperous and caring world.

Program's Goals	*University's Goals*							
	UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
PG1	✓	✓	✓	✓	✓	✓		✓
PG2	✓	✓	✓	✓	✓	✓		✓
PG3	✓	✓	✓	✓	✓	✓		✓
PG4		✓	✓	✓		✓		✓
PG5	✓		✓	✓		✓		✓

5. 1. A: *Map University's Goals with the Program's Goals – Inorganic Chemistry Track.*

Map University's Goals with the Program's Goals									
PLOs- Inorg.	*Program's Goals*	*University's Goals*							
		UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
K1.*Inorg.*;K2.*Inorg.*; K3.*Inorg.*; S1.*Inorg.*; S2.*Inorg.*; V1. *Inorg.*	PG1	✓	✓	✓	✓	✓	✓		✓
K2.*Inorg.*; K3.*Inorg.*;S1.*Inorg.*; S2. *Inorg.*;S3.*Inorg.*;V1.*Inorg.*; V2. *Inorg.*	PG2	✓	✓	✓	✓		✓		✓
K2.*Inorg.*; K3.*Inorg.*;S2.*Inorg.*; S3.*Inorg.*; V1.*Inorg.*; V2.*Inorg.*	PG3	✓		✓	✓	✓	✓		✓
K2.*Inorg.*;K3.*Inorg.*;K4.*Inorg.*; S2. *Inorg.*;S3.*Inorg.*;S4.*Inorg.*; V1. *Inorg.*; V2. *Inorg.*	PG4		✓	✓	✓	✓	✓		✓
K2.*Inorg.*;K4.*Inorg.*;S2.*Inorg.*;S4.*Inorg.*; V1.*Inorg.*; V2.*Inorg.*	PG5	✓		✓	✓	✓			✓

5. 1. B: *Map University's Goals with the Program's Goals –Organic Chemistry Track.*

Map University's Goals with the Program's Goals									
PLOs- Org.	*Program's Goals*	*University's Goals*							
		UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
K1. *Org.*; K2. *Org.*; K3. *Org.*; S1. *Org.*; S2. *Org.*; V1. *Org.*	PG1	✓	✓	✓	✓	✓	✓		✓

K2. *Org.*; K3. *Org.*; S1. *Org.*; S2. *Org.*; S3. *Org.*; V1. *Org.*; V2. *Org.*	PG2	✓	✓	✓	✓		✓		✓
K2. *Org.*; K3. *Org.*; S2. *Org.*; S3. *Org.*; V1. *Org.*; V2. *Org.*	PG3	✓		✓	✓	✓	✓		✓
K2. *Org.*; K3. *Org.*; K4. *Org.*; S2. *Org.*; S3. *Org.*; S4. *Org.*; V1. *Org.*; V2. *Org.*	PG4		✓	✓	✓	✓	✓		✓
K2. *Org.*; K4. *Org.*; S2. *Org.*; S4. *Org.*; V1. *Org.*; V2. *Org.*	PG5	✓		✓	✓	✓			✓

5. 1. C: *Map University's Goals with the Program's Goals –Analytical Chemistry Track.*

Map University's Goals with the Program's Goals									
PLOs- Anal.	*Program's Goals*	*University's Goals*							
		UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
K1. *Anal.*; K2. *Anal.*; K4. *Anal.*; S1. *Anal.*; S4. *Anal.*; V1. *Anal.*	PG1	✓	✓	✓	✓	✓	✓		✓
K2. *Anal.*; K3. *Anal.*; S1. *Anal.*; S2. *Anal.*; S3. *Anal.*; V1. *Anal.*; V2. *Anal.*	PG2	✓	✓	✓	✓		✓		✓
K2. *Anal.*; K3. *Anal.*; S1. *Anal.*; S2. *Anal.*; S3. *Anal.*; V1. *Anal.*	PG3	✓		✓	✓	✓	✓		✓
K1. *Anal.*; K2. *Anal.*; K3. *Anal.*; S1. *Anal.*; S2. *Anal.*; V1. *Anal.*; V2. *Anal.*	PG4		✓	✓	✓	✓	✓		✓
K2.*Anal.*; K3.*Anal.*; S2.*Anal.*; S3.*Anal.*; S4.*Anal.*; V1.*Anal.*; V2.*Anal.*	PG5	✓		✓	✓	✓			✓

5. 1. D: *Map University's Goals with the Program's Goals –Physical Chemistry Track*

Map University's Goals with the Program's Goals									
PLOs- Anal.	*Program's Goals*	*University's Goals*							
		UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
K1.*Phy.*; K2.*Phy.*; K4.*Phy.*; S1.*Phy.*; *S4. Phy.*; V1. *Phy.*	PG1	✓	✓	✓	✓	✓	✓		✓

K2. *Phy.*; K3. *Phy.*; K4.*Phy.*; S1. *Phy.*; S2. *Phy.*; S3.*Phy.*; V1. *Phy.*; V2. *Phy.*	PG2	✓	✓	✓	✓		✓		✓
K2. *Phy.*; K3. *Phy.*; S1.*Phy.*; S2. *Phy.*; S3. *Phy.*; V1. *Phy.*	PG3	✓		✓	✓	✓	✓		✓
K1. *Phy.*; K2. *Phy.*; K3.*Phy.*; S1. *Phy.*; S2. *Phy.*; V1.*Phy.*; V2. *Phy.*	PG4		✓	✓	✓	✓	✓		✓
K2. *Phy.*; K3. *Phy.*; S2.*Phy.*; S3.*Phy.*; S4.*Phy.*; V1.*Phy.*; V2.*Phy.*	PG5	✓		✓	✓	✓			✓

- ✓ The Master of Science Chemistry Program has a clear mission statement appropriate for higher education and consonant with the mission and strategic priorities of the university and college.
- ✓ The Master of Science Chemistry Program is designed to offer advanced knowledge and skills in Chemistry and relevant subjects. Students take a range of core and elective courses in different Chemistry fields.

5. 2 College Mission

Provide distinguished academic programs accredited in fundamental sciences and their applications to qualify national cadres to meet the requirements of development and plan to localize technology in KSA, in order to contribute effectively to the development of scientific research and community service.

Specific goals of College

(classify them according to domains: knowledge, skills, values)

5. 2. A. *Map College's Goals with the Program's Goals –Inorganic Chemistry Track*

College's Goals	*PLOs- Inorg.*
CG1. Preparing qualified graduates with high scientific qualifications who meet the requirements of the labor market.	K1. *Inorg.*; K2. *Inorg.*; S1. *Inorg.*; S2. *Inorg.*; S4. *Inorg.*; V1. *Inorg.*; V2. *Inorg.*
CG2. Introducing postgraduate programs at the college and expanding undergraduate and expanding undergraduate academic programs	K1. *Inorg.*; K2. *Inorg.*; S1. *Inorg.*; V2. *Inorg.*
CG3. Excellence in scientific research	K3. *Inorg.*; S1. *Inorg.*; S2. *Inorg.* ; V1. *Inorg.*; V2. *Inorg.*
CG4. Developing college learning resources	K2. *Inorg.*; S2 *Inorg.*; S3. *Inorg.*
CG5. Improving the role of the college in community service	K1. *Inorg.*; K4. *Inorg.*; S2. *Inorg..*; S4. *Inorg.*; V1. *Inorg.*; V2. *Inorg.*

5. 2. B. *Map College's Goals with the Program's Goals –Organic Chemistry Track*

College's Goals	*PLOs- Org.*
CG1. Preparing qualified graduates with high scientific qualifications who meet the requirements of the labor market.	K1. *Org.*; K2. *Org.*; S1. *Org.*; S2. *Org.*; S3. *Org.*; V1. *Org.*; V2.*Org.*

CG2. Introducing postgraduate programs at the college and expanding undergraduate and expanding undergraduate academic programs	K1. *Org.*; K2. *Org.*; S1. *Org.*; V1. *Org.*; V2. *Org.*
CG3. Excellence in scientific research	K3. *Org.*; S1. *Org.*; S2. *Org.*; V1. *Org.*; V2. *Org.*
CG4. Developing college learning resources	K2. *Org.*; S2. *Org.*; S3. *Org.*
CG5. Improving the role of the college in community service	K1. *Org.*; K4. *Org.*; S2. *Org.*; S4. *Org.*; V1. *Org.*; V2. *Org.*

5. 2. C. ***Map College's Goals with the Program's Goals –Analytical Chemistry Track***

College's Goals	*PLOs- Anal.*
CG1. Preparing qualified graduates with high scientific qualifications who meet the requirements of the labor market.	K1. *Anal.*; K4. *Anal;* S1. *Anal;* S2. *Anal;* S3. *Anal;* V1. *Anal;* V2. *Anal.*
CG2. Introducing postgraduate programs at the college and expanding undergraduate and expanding undergraduate academic programs	K1. *Anal.*; K2 *Anal..*; S1. *Anal.*; V1. *Anal..*; V2. *Anal.*
CG3. Excellence in scientific research	K2. *Anal.*; K3. *Anal.*; S1. *Anal.*; S2. *Anal.*; V1. *Anal.*; V2. *Anal.*
CG4. Developing college learning resources	K2. *Anal.*; S2. *Anal.*; V1. *Anal.*
CG5. Improving the role of the college in community service	K1. *Anal.*; K2. *Anal.*; S2. *Anal.*; S4. *Anal.*; V2. *Anal.*

5. 2. D. ***Map College's Goals with the Program's Goals –Physical Chemistry Track***

College's Goals	*PLOs- Phy.*
CG1. Preparing qualified graduates with high scientific qualifications who meet the requirements of the labor market.	K1. *Phy.*; K2. *Phy.*; S1. *Phy.*; S2. *Phy.*; S4. *Phy.*; V1. *Phy.*; V2. *Phy.*;
CG2. Introducing postgraduate programs at the college and expanding undergraduate and expanding undergraduate academic programs	K1. *Phy.*; K3. *Phy.*; S1. *Phy.*
CG3. Excellence in scientific research	K2. *Phy.*; K3. *Phy.*; S1. *Phy.*; S2. *Phy.*; V1. *Phy.*; V2. *Phy.*
CG4. Developing college learning resources	K2. *Phy.*; S2. *Phy.*; V1. *Phy.*
CG5. Improving the role of the college in community service	K1. *Phy.*; k2. *Phy.*; S2. *Phy.*; S4. *Phy.*; V2. *Phy.*

Map College's Goals with University's Goals :

	UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
CG1	✓	✓		✓		✓		✓
CG2	✓		✓	✓	✓	✓		✓
CG3		✓	✓	✓	✓	✓	✓	✓
CG4	✓		✓	✓			✓	✓
CG5				✓	✓		✓	✓

5. 3. A. ***Map College's Goals with the Program's Goals –Inorganic Chemistry Track***

Map Collage's Goals with the Program's Goals						
PLOs	***Program's Goals***	***Collage's Goals***				
		CG1	**CG2**	**CG3**	**CG4**	**CG5**
K1. *Inorg.*; K2. *Inorg.*; K3. *Inorg.* S1. *Inorg.*; S2. *Inorg.*; S4. *Inorg.*; V1.*Inorg.*; V2.*Inorg.*	**PG1**	✓	✓	✓	✓	✓
K1. *Inorg.*; K2. *Inorg.*; K3. *Inorg*; S1. *Inorg.*; S2. *Inorg.*; V1.*Inorg.*; V2.*Inorg.*	**PG2**	✓	✓	✓	✓	
K2. *Inorg.*; S1. *Inorg.*; S2. *Inorg.*; S3. *Inorg.*; V2. *Inorg.*	**PG3**	✓		✓	✓	✓
K2. *Inorg.*; K3. *Inorg.*; S1. *Inorg.*; S2. *Inorg.*; V1. *Inorg.*; V2. *Inorg.*	**PG4**	✓		✓	✓	
K1. *Inorg.*; K2. *Inorg.*; K3. *Inorg.*; S2. *Inorg.*; S4. *Inorg.*; V2. *Inorg.*; V1.*Inorg.*	**PG5**	✓	✓	✓	✓	✓

5. 3. B. *Map College's Goals with the Program's Goals –Organic Chemistry Track*

Map Collage's Goals with the Program's Goals						
PLOs	*Program's Goals*	*Collage's Goals*				
		CG1	CG2	CG3	CG4	CG5
K1. *Org.*; K2. *Org.*; K3. *Org.* S1. *Org.*; S2. *Org.*; S4. *Org.*; V1. *Org.*; V2. *Org.*	PG1	✓	✓	✓	✓	✓
K1. *Org.*; K2. *Org.*; K3. *Org.*; S1. *Org..*; S2. *Org.*; V1. *Org.*; V2. *Org.*	PG2	✓	✓	✓	✓	
K2. *Inorg.*; S1. *Inorg.*; S2. *Inorg.*; S3. *Inorg.*; V2. *Inorg.*	PG3	✓		✓	✓	✓
K2. *Inorg.*; K3. *Inorg.*; S1. *Inorg.*; S2. *Inorg.*; V1. *Inorg.*; V2. *Inorg.*	PG4	✓		✓	✓	
K1. *Inorg.*; K2. *Inorg.*; K3. *Inorg.*; S2. *Inorg.*; S4. *Inorg.*; V2. *Inorg.*; V1.*Inorg.*	PG5	✓	✓	✓	✓	✓

5. 3. C. *Map College's Goals with the Program's Goals –Analytical Chemistry Track*

Map Collage's Goals with the Program's Goals						
PLOs	*Program's Goals*	*Collage's Goals*				
		CG1	CG2	CG3	CG4	CG5
K1; K4; S1; S2; S3; V1;V2	PG1	✓	✓	✓	✓	✓
K1; S1.	PG2	✓	✓	✓	✓	
K2; K3; S1; S2; V2.	PG3	✓		✓	✓	✓
S2; V1	PG4	✓		✓	✓	
K1; K2; S2; S4; V2	PG5	✓	✓	✓	✓	✓

5. 3. D. *Map College's Goals with the Program's Goals –Physiacl Chemistry Track*

Map Collage's Goals with the Program's Goals						
PLOs	*Program's Goals*	*Collage's Goals*				
		CG1	CG2	CG3	CG4	CG5

K1; K2; S1; S2; S4; V1;V2	PG1	✓	✓	✓	✓	✓
K1; K3; S1.	PG2	✓	✓	✓	✓	
K2; k3; S1; S2; V2.	PG3	✓		✓	✓	✓
S2; V1	PG4	✓		✓	✓	
K1; k2; S2; S4; V2	PG5	✓	✓	✓	✓	✓

- ✓ **The learning outcomes of the Master of Science in Chemistry program** have been formulated according to the National Qualifications Framework (NQF) and are recorded in the program specification. Moreover, each course has its own learning outcomes recorded in the course specification and related to the program's learning outcomes.
- ✓ The learning outcomes are mentioned in the courses and program specifications.
- ✓ The internal quality assurance system (IQAS-CHM) is implemented in the Department, providing continuous quality improvement. The department followed the required quality standards established by NCAAA and Quality Process by the University. The system is systematically involving all department programs.

Mechanism for the measure of the learning outcomes and Using its Results in the Development Processes- Improvement Plan:

Course folder:

- ✓ **Through the study of the learning outcomes matrix, which is stated in the program specification. A model has to be selected from the course learning outcomes, which greatly serve the program plan.**
- ✓ **The Course responsible must review the exam models and learning outcomes for those courses in the course and program specification.**
- ✓ **If there is a difference in the students' results, however, 80% of the learning outcomes have to be covered, considering that the exams are unified between male and female sections.**
- ✓ **Advisory committee report:**
  The remarks and comments of The Advisory Committee were considered and discussed in the Department council (the committee and department's minutes).

✓ **Annual Report:**

The learning outcomes were measured through the main KPIs that were approved by the college council. Annually, the results are documented with the improvement plans within the annual report and taking into consideration the available feedback through the following items:

- **Course report.**
- **Student's feedback.**
- **Students' questionnaire.**
- **Employers' feedback.**
- **External assessor for the program and the exams.**
- **The minutes of the advisory committee.**
- **Besides, all of these points were discussed in the Department councils, and improvements plans were suggested and applied.**

❖ **External Assessor:**

The main objective of the review of courses leading to Program review is to assess and report the following to the head of the department, joining with Independent External Assessor Report:

- ✓ Quality of teaching;
- ✓ earning activities;
- ✓ Course delivery methods;
- ✓ Course content;
- ✓ Teaching Strategies;
- ✓ Methods of assessment;
- ✓ Achievement of SLOs of the course;
- ✓ Adequacy of facilities and resources.

All remarks, comments, opinions, and Students' evaluations of the course mentioned in the collective report were sent to the head of the Department and discussed in the department council (report of the external assessor, department council minutes, and the replies).

❖ **Self-Study Report for Program:**

Every five years, represented by QUD, The follow-up for all are parts of the overall management quality system at the department and College.

Evidences:

- ✓ Courses reports.
- ✓ Feedbacks from the course reports.
- ✓ External assessor reports for the program and exams.
- ✓ The advisory committee minutes.
- ✓ Department council minutes (discussion of the annual report).
- ✓ Department council minutes (external assessor).
- ✓ Department council minutes (final year Theses).
- ✓ The external assessor report.
- ✓ The reply on the external assessor report.
- ✓ The analysis of the student questionnaires about the courses.
- ✓ Annual report.
- ✓ The summary of the program annual report.
- ✓ The results of the student's questionnaires.
- ✓ The results of the graduate's questionnaires.
- ✓ The results of the employer's questionnaires.

Program Assessment process & Tools

- ✓ The Department identifies the program's learning outcomes nominated in Program and Courses specifications, evaluates to which extent the program achieves its outcome-oriented objectives and goals, and provides evidence for making continuous improvements.
- ✓ Assessment of student learning outcomes involves the following:
  - The systematic collection of students learning activities.
  - The continuous evaluation feedback , and
  - The use of collected data from previous items to improve: teaching, departmental effectiveness, student learning, and student development .
- ✓ The Course Responsible presents to the Program Manager (head of the department), a course report (CR) for each course in the program at the end of each semester with an annual assessment report on its progress and achievement, monitoring and including student learning outcomes and all activities .

- ✓ **The Program Annual Assessment Report (PAAR) has to mention: mission, goals, and objectives, the specific student learning outcomes expected upon program completion.**
- ✓ **The Annual Report for the Program (APR) requires addressing mission /purpose, expected student learning outcomes, assessment tools and techniques, assessment results, continuous improvement efforts, and resource needs.**

To enrich the teaching\learning environment, with goals and objectives related to student learning outcomes the Department applies a teaching\learning assurance quality model, in order, the following issues:

- **Mission and goals;**
- **College strategic plan goals;**
- **Key Performance Indicators;**
- **Assessment procedures;**
- **Continuous improvement;**
- **Action plans with resources.**

This process supports the Department effectiveness, organize and evaluates systematic assessment to improve the Department's planning continuously, and a decision making.

6. Program Evaluation Matrix:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Program Leader	Responsible Course Report	**Direct:** Course e-Portfolio **Indirect:** Course Report	beginning of the Second semester
effectiveness of teaching & assessment	Students	**Direct:** Questionnaire	Beginning of Second semester
	Course Responsible	**Direct:** Course e-Portfolio **Indirect**: Second Examiner Checklist-Course Report	
	Program Leader	**Direct:** Course e-Portfolio **Indirect**: External Assessor Report	
	Independent Reviewers	**Indirect**: Exams	
learning resources	Students	**Direct:** Questionnaire	End of the academic year
	Course Responsible	**Direct:** Course e-Portfolio **Indirect**: Second Examiner Checklist-Course Report	
	Program leaders	**Direct:** Course e-Portfolio **Indirect**: Course Evaluation Survey	

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.)

Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others.
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of the academic year, etc.)

7. Program KPIs:*

The period to achieve the target (____) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-PG-1	Percentage of achieved indicators of the program operational plan objectives	85%	Surveys, Department data	Yearly starting from the first promotion
2	KPI-PG-2	Students' Evaluation of quality of learning experience in the program	4.50	surveys	Twice per year
3	KPI- PG-3	Students' evaluation of the quality of the courses	4.50	surveys	Twice per year
4	KPI-PG-4	Students' evaluation of the quality of scientific supervision	4.60	surveys	Yearly starting from the first promotion
5	KPI-PG-5	Average time for students' graduation	5 years	Graduation data	Yearly starting from the first promotion
.....	KPI-PG-6	Rate of students dropping out of the program	0.3	Graduation data	Yearly starting from the first promotion
	KPI-PG-7	Graduates' employability	85%	Graduation Unit	Yearly starting from the first promotion
	KPI-PG-8	Employers' evaluation of the program graduates' competency	4.80	surveys	Yearly starting from the first promotion
	KPI-PG-9	Students' satisfaction with the provided services	4.60	surveys	Yearly
	KPI-PG-10	Ratio of students to faculty members	10/1	Department data	Yearly
	KPI-PG-11	Percentage of faculty members' distribution based on academic ranking		Department data	Yearly
	KPI-PG-12	Proportion of faculty members	0.1	Department data	Yearly

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
		leaving the program			
	KPI-PG-13	Satisfaction of beneficiaries with learning resources	4.50	surveys	Yearly
	KPI-PG-14	Satisfaction of beneficiaries with research facilities and equipment	4.60	surveys	Yearly
	KPI-PG-15	Percentage of publications of faculty members	85%	Department data	Yearly
	KPI-PG-16	Rate of published research per faculty member	2.00-4.00	Department data	Yearly
	KPI-PG-17	Citations rate in refereed journals per faculty member	60	Department data	Yearly
	KPI-PG-18	Percentage of students' publication	90%	Department data	Yearly starting from the first promotion
	KPI-PG-19	Number of patents, innovative products, and awards of excellence	1.00	Department data	Yearly

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	
Reference No.	
Date	