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T14

Program Specifications (Postgraduate Degree)

Program Name: Master of Science in Chemistry
Qualification Level: 7 Sublevel: 747 (SASCED-2020)
Department: Chemistry
College: Science
Institution: Imam Mohammed Ibn Saud Islamic University.

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A. Program Identification and General Information

1. Program Main Location:

Main Campus (Male section)

2. Branches Offering the Program:

Branch 1. King Abdullah City (for the Female Section).

3. Reasons for Establishing the Program:

(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

The development in chemical sciences and its close connection with many aspects of life motivated the department and college to establish the Master of Science in Chemistry program. In light of the rapid economic transformation, the Kingdom of Saudi Arabia is pursuing to enter the world of non-oil industries and scientific research to achieve the 2030 vision towards building a more diversified economy based on industry and developing it through scientific research.

Therefore, postgraduate studies in chemistry have become of Economic, Social, and Scientific necessity in adding technology, an urgent issue. As the applications of chemistry are involved in many pharmaceutical industries, building materials industries, mining, petrochemical industries, and fertilizers, and extend to nanometric materials, new materials, and renewable energy, all of which represent an essential and influential Economic axis, and these industries will not stop at the transfer of technology. It extends to creating research centers whose function is to develop these industries with pure Saudi technology.

Technological, Economical and National Needs Reasons :

- Attracting young male and female researchers who graduate from science colleges for postgraduate studies and qualifying them to enter the labor market and fill the shortage in highly qualified and trained cadres.
- Developing Saudi chemists' capabilities in employing scientific theories and foundations to find solutions to urgent scientific problems in industry or scientific research related to the surrounding environment.
- Qualifying and developing the abilities of chemists to innovate and search for everything new in specialization to build a Saudi scientific research base.
- Qualifying and preparing chemical researchers to work in industry and scientific research and teaching in Saudi universities.
- Preparing chemical researchers to work on modern scientific equipment and follow-up development.
- Effective participation in the **Saudization** of an essential and influential segment and establishing a Saudi scientific base of highly qualified Saudi researchers and chemists.
- Dedicating to keep pace with the Imam Muhammad bin Saud Islamic University through the master's program in chemistry with the Kingdom's 2030 vision of building a robust, diversified, and sustainable economy through the qualification and numbers of specialists in the field of chemistry to work in industry and scientific research as one of the tributaries of a healthy economy.
- The economic transformation caused by the importance of diversifying the sources of the economy from the establishment of new industries and research centers working to provide and develop Saudi technology. The need for Saudi chemists who are qualified to work in the fields of production and quality control of production and scientific research is an increase in:
 - Pharmaceutical industries
 - Petrochemical industries

- Building materials industries and their requirements
- Research centers
- Laboratories of the Ministry of Health
- Ministry of Agriculture - Pesticide Analysis Unit - Fertilizer - Food Analysis Laboratories.
- Water purification and environmental pollution reduction
- Ministry of education
- Saudi universities.

Culture and Social Reasons:

- It initiates the culture of creativity and innovation through graduate programs that seek to develop it with outstanding returns on the knowledge economy and the surrounding society.
- Securing the future for graduates with twenty-first-century skills and qualifying them for the rapid changes in science and knowledge and the use of modern technology.
- It keeps pace with adopting initiatives and recommendations that promote the development of the national product by establishing transformative industries and industries based on the knowledge economy, which is reflected positively on the development goals socially and culturally.

4. System of Study

- Coursework & Thesis Coursework

5. Mode of Study

- On Campus Distance Education Others

6. Educational and Research Partnerships(if any)

- Partnership Arrangement: **N.A.**
 - Type of Partnership: **N.A.**
 - Duration of Partnership: **N.A.**

7. Total Credit Hours for Completing the Program: (48 Credit Hours)

8. Professional Occupations/Jobs:

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

- according to the classification of the Ministry of Human Resources

	Code	Professional Name
1	211301	كيميائي 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

9. Major Tracks/Pathways (if any):																							
Major Track/Pathway	Credit Hours (For each track)	Professional Occupations/Jobs (For each track)																					
1-Chemistry- Inorganic Chemistry (Inorg.) SASCID-20 CODE: 053107	48	<p>Inorganic Chemistry Pathway (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide)</p> <table border="1"> <thead> <tr> <th></th> <th>Code</th> <th>Professional Name</th> </tr> </thead> <tbody> <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> </tbody> </table> <ul style="list-style-type: none"> ▪ <i>Researchers in Governmental Research Centers, Industrial Research and Development Sectors.</i> ▪ <i>Qualified lecturers in Universities, Scientific Research Institutions and High Schools</i> ▪ <i>Building materials and supplies industries</i> ▪ <i>Ministry of Energy, Industry and Mineral Resources, Quality Control and Production Sectors.</i> ▪ <i>Water purification and reduction of environmental pollution, Analysis and Water treatment sectors.</i> ▪ <i>Consultants in Chemical companies.</i> 		Code	Professional Name	1	231026	lecturer	2	231027	Administrator	3	211301	Chemist	4	211302	Chemist for Industrial Sector	5	232005	Applied science instructor Chemistry	6	211303	Chemist for Pharmaceutical Sciences and health sector labs
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2- Chemistry- Organic Chemistry (Org.) SASCID-20 CODE: 053103	48	<p>Organic Chemistry Pathway (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide)</p> <table border="1"> <thead> <tr> <th></th> <th>Code</th> <th>Professional Name</th> </tr> </thead> <tbody> <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>211304</td> <td>Chemist for petrochemical industries</td> </tr> </tbody> </table>		Code	Professional Name	1	231026	lecturer	2	231027	Administrator	3	211301	Chemist	4	211302	Chemist for Industrial Sector	5	211304	Chemist for petrochemical industries			
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<p>4- Chemistry- Physical Chemistry (Phy.) SASCID-20 CODE: 053105</p>	<p>48</p>	<p>Physical Chemistry Pathway (according to the classification of the Ministry of Human Resources and Unified Saudi Occupational Classification Guide)</p> <table border="1" data-bbox="963 1227 1445 1630"> <thead> <tr> <th></th> <th>Code</th> <th>Professional Name</th> </tr> </thead> <tbody> <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>211304</td> <td>Chemist for petrochemical industries</td> </tr> <tr> <td>6</td> <td>232005</td> <td>Applied science instructor Chemistry</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ▪ <i>Researchers in Governmental Research Centers, Industrial Research and Development Sectors.</i> ▪ <i>Qualified lecturers in Universities, Scientific Research Institutions and High Schools</i> ▪ <i>Ministry of Energy, Industry and Mineral Resources,</i> 		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
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		<p><i>Analysis, Quality Control and Production Sectors.</i></p> <ul style="list-style-type: none"> ▪ <i>Water purification and reduction of environmental pollution, Analysis and Water treatment sectors.</i> ▪ <i>Consultants in Chemical companies.</i>
<p>10. Intermediate Exit Points/Awarded Degree (if any):</p>		
	<p>Intermediate Exit Points/Awarded Degree</p>	<p>Credit Hours</p>
	<p>At least one year with minimum 33 Credit Hours (According NQF-p.25, minimum 24 Credit Hours)/ sublevel 667- (SASCED-2020, and following the <i>Procedural organizational guide for the development of academic programs</i> p 20) / Higher Diploma in Chemistry</p>	<p>33 Credit Hours (with a GPA less than 3.75, that will not allow to Registration of the thesis, p.25 – Program Specfication 2020)</p>

B. Mission, Goals, and 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. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

The mission and objectives of the program meet the mission of the university and the college:

- 1- Providing a distinguished academic program in chemistry that serves a vast industry and scientific research sector in qualifying scientific cadres to meet the needs of the labor market.
- 2- The Master of Science program in Chemistry is considered one of the basic science programs and applications to qualify national cadres to meet the development requirements and plans for technology settlement.
- 3- The program achieves competitive outputs that meet the needs of the labor market and contribute to building a knowledge economy and serving the local and global community.
- 4- The program seeks to meet the university's mission and strategic goals 2021-2025
 - ✓ *The first strategic goal:* competitive educational outputs that qualified in knowledge and skills that meet the needs of the labor market. By developing and providing new educational paths that enhance the university's competitiveness, the university's outputs are at the skill and knowledge level for the program's students. The program is an attraction point for distinguished students in chemistry, distinguishing the university's input from those enrolled in the program.
 - ✓ *The second strategic goal:* qualitative research contributes to knowledge progress and meets national development needs. It is enhancing the supportive and stimulating environment for scientific research through a distinguished academic program that allows graduate students to publish scientific publications in publications and classified and prominent scientific journals both globally and globally (this is one of the program's desired outputs to enhance the competitive position of the university).

- ✓ ***The third strategic goal:*** innovative and pioneering outputs enhance the knowledge economy and achieve sustainable development. They are developing an academic program whose objectives are to support innovation as one of the desired learning outcomes and stimulate it to strengthen the knowledge economy and achieve sustainable development.
- ✓ ***The eighth strategic goal:*** a national personality based on the values of moderation and moderation.

5- It contributes to the development of the Kingdom of Saudi Arabia in various social, cultural, and developmental fields by attracting distinguished graduates in chemistry and related disciplines for higher studies. It will refine their scientific knowledge, securing the future with twenty-first-century skills and scientific preparation for the Fourth Industrial Revolution and the booms in industry and scientific research.

6- The growth of the program and the achievement of the goals meet the university and the college goals. The fourth goal of influential community and national partnerships contributes by adopting qualitative partnerships with research centers and the industry sector to enhance the role of the university and college in transferring knowledge and investing research competencies in solving industry problems and enriching Knowledge economics.

7- The fifth strategic goal, which is represented in distinguished global partnerships and effective influence, will be achieved through the development and growth of the program and its endeavor to start those partnerships with the chemistry departments of local and international universities, which leads to enhancing the university's position globally.

The following table shows the relationship of the program with the strategic goals of the university as well as the strategic goals of the college

Strategic Goals of Imam Mohammad Ibn Saud Islamic University

UG1	Competitive educational outputs, qualified in knowledge and skills that meet the needs of the labor market.
UG 2	Qualitative research that contribute to knowledge advancement and meet the needs for national development
UG 3	Innovative and pioneering outputs that enhance knowledge economy and achieve sustainable development
UG 4	Effective national community contributions and partnerships
UG 5	Distinguished world partnerships and effective impact
UG 6	Institutional Excellence that achieves efficient and effective performance
UG 7	Sustainable financial resources and high spending efficiency
UG 8	Building a national character based on moderation and tolerance

Strategic Goals of College of Science, Imam Mohammad Ibn Saud Islamic University

CG 1	Preparing qualified graduates with high scientific qualifications who meet the requirements of the labor market.
CG 2	Introducing postgraduate programs at the college and expanding undergraduate and expanding undergraduate academic programs
CG 3	Excellence in scientific research
CG 4	Developing college learning resources
CG 5	Improving the role of the college in community service

The program goals (PG) set by the department, in support of the mission of the university, and collage, 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 investigation, research and conclusion in the field of scientific research
PG 5	Increasing and refining the Graduate's competitive ability and knowledge and skill qualification to meet the needs of the labor market and the promising economic growth of Vision 2030.

First: A table illustrates the relationship between the program's goals (PG) and the university's mission and goals

	UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
PG-G1	✓	✓	✓	✓	✓	✓		✓
PG-G2	✓	✓	✓	✓				✓
PG-G3	✓	✓	✓	✓			✓	✓
PG-G4	✓	✓	✓	✓				✓
PG-G5	✓	✓	✓	✓	✓	✓		✓

Second: A table illustrates the relationship between the program objectives and the strategic objectives of the college

	CG1	CG2	CG3	CG4	CG5
PG2-G1	✓	✓	✓		✓
PG2-G2	✓	✓			
PG2-G3		✓	✓		✓
PG2-G4	✓		✓		
PG2-G5	✓	✓			✓

4. Graduate Attributes:

1. *The graduate* represents moderation and moderation in his thought and behavior and is committed to his duties in work and life and his rights while preserving national and religious identity.
2. *The graduate* can show and illustrate the knowledge gained in chemistry and applying it in improvement and development.
3. *The graduate's* ability will develop to employ the scientific method of thinking and finding solutions to urgent problems in work or research.
4. *The graduate* will employ the acquired information and scientific research to develop industry and scientific research and solve societal problems in the surrounding environment.
5. *The graduate* will be able to take responsibility and teamwork, and the capability to act as a leader of research groups
6. *The graduate* gains scientific honesty, credibility, and accuracy in work.
7. The graduate can use equipment, chemicals, and tools to achieve the two safety and rationalization elements.
8. *The graduate* can design an integrated scientific experiment, find the hypothesis, and solve it.
9. *The graduate* can compete and participate in the labor market's needs to those who are qualified in the field of chemistry.

5. Program Learning Outcomes*

5.1 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 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.

Values

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.

* Add a table for each track or Exit Points/Awarded Degree (if any)

5. Program Learning Outcomes***5.2 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

S1. Org.	To develop and evaluate Synthetic Methods, based on Molecular Structure, Stereochemistry, Functional Groups, and reactivity relationships.
S2. 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.
S3. 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

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 in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

5. Program Learning Outcomes*	
5.3 PLO Analytical Chemistry Track. (Anal.) SASCID-20 CODE: 053104	
Knowledge and Understanding	
K1. 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	
S1. 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	
V1. 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
V2. 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.

5. Program Learning Outcomes***5.4 PLO Physical Chemistry Track (Phy.) SASCID-20 CODE: 053105****Knowledge and Understanding**

K1. 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.

Skills

S1. Phy.	To evaluate Kinetics, Thermodynamics, and Materials Science and its applications in Nanomaterials, and Hybrid Materials.
S2. 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.
S3. Phy.	To compare reactivity at the interfaces of different Materials with applications as Biosensors and Catalysis.
S4. 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

V1. 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
V2. 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***5. Program Learning Outcomes*****5.6 PLO Higher Diploma (HD) (Exit Point) SASCID-20 CODE: 053101 (Sublevel 667)****Knowledge and Understanding**

K1. 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

S1. 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.
S2. HD	To compare and choose the appropriate techniques and instruments in Chemical elucidation, analysis and its application in industrial sectors

S3. 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	
V1. 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
V2. 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.

C. Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	6	23	47.92%
	Elective	3	15	31.25%
Graduation Project (if any)		0	0	0
Thesis (if any)		1	10	20.83%
Field Experience(if any)		-	-	-
Others (.....)		-	-	-
Total		10	48	100%

* Add a 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
Level 1	CHM 6121	Advanced Organic Chemistry	Required	-	5 (5,0,0)
	CHM 6131	Advanced Analytical Chemistry	Required	-	5 (5,0,0)
Level 2	CHM 6111	Inorganic Molecular Spectroscopy	Required	-	5 (5,0,0)
	CHM 6141	Advanced Physical Chemistry	Required	-	5 (5,0,0)
Level 3	CHM 61XX	Elective Course 1 (Inorg.)	Elective	CHM 6111	5 (5,0,0)
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)
Level 4	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)
	CHM 62XX	Elective Course 2 (Inorg.)	Elective	CHM 6111	5 (5,0,0)
Exit Point* 33 Credit Hours					
Level 5	CHM 62XX	Elective Course 3 (Inorg.)	Elective	CHM 6111	5 (5,0,0)
Level 6	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	10 (0,20,0)

* Include additional levels if needed

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

Elective Courses –Inorganic Chemistry Track – List A

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 3	CHM 6112	Advanced Inorganic Reaction Mechanisms	Elective	CHM 6111	5 (5,0,0)
	CHM 6113	Advanced Coordination Chemistry	Elective	CHM 6111	5 (5,0,0)
	CHM 6114	Selected Topics in Inorganic Chemistry	Elective	CHM 6111	5 (5,0,0)
Level 4	CHM 6215	Bio-inorganic Chemistry	Elective	CHM 6111	5 (5,0,0)
	CHM 6216	Chemistry and Technology of Inorganic Materials	Elective	CHM 6111	5 (5,0,0)
Level 5	CHM 6217	Advanced Inorganic Chemistry applications	Elective	CHM 6111	5 (5,0,0)

2.2 Organic Chemistry Track (Org.)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	CHM 6121	Advanced Organic Chemistry	Required	-	5 (5,0,0)
	CHM 6131	Advanced Analytical Chemistry	Required	-	5 (5,0,0)
Level 2	CHM 6111	Inorganic Molecular Spectroscopy	Required	-	5 (5,0,0)
	CHM 6141	Advanced Physical Chemistry	Required	-	5 (5,0,0)
Level 3	CHM 61XX	Elective Course 1 (Org.)	Elective	CHM 6121	5 (5,0,0)
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)
Level 4	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)
	CHM 62XX	Elective Course 2 (Org.)	Elective	CHM 6121	5 (5,0,0)
Exit Point* 33 Credit Hours					
Level 5	CHM 62XX	Elective Course 3 (Org.)	Elective	CHM 6121	5 (5,0,0)
Level 6	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	10 (0,20,0)

* Include additional levels if needed

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

Elective Courses –Organic Chemistry Track – List B

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 3	CHM 6122	Physical Organic Chemistry	Elective	CHM 6121	5 (5,0,0)
	CHM 6123	Spectroscopic Methods for Determining Organic Compounds Structures	Elective	CHM 6121	5 (5,0,0)
Level 4	CHM 6224	Stereoselectivity Synthesis	Elective	CHM 6121	5 (5,0,0)
	CHM 6225	Advanced Bio-Organic Chemistry	Elective	CHM 6121	5 (5,0,0)
Level 5	CHM 6226	Chemistry of Organic Polymers and Petrochemicals	Elective	CHM 6121	5 (5,0,0)
	CHM 6227	Selected Topics in Organic Chemistry	Elective	CHM 6121	5 (5,0,0)

Analytical Chemistry Track (Anal.)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	CHM 6121	Advanced Organic Chemistry	Required	-	5 (5,0,0)
	CHM 6131	Advanced Analytical Chemistry	Required	-	5 (5,0,0)
Level 2	CHM 6111	Inorganic Molecular Spectroscopy	Required	-	5 (5,0,0)
	CHM 6141	Advanced Physical Chemistry	Required	-	5 (5,0,0)
Level 3	CHM 61XX	Elective Course 1 (Anal.)	Elective	CHM 6131	5 (5,0,0)
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)
Level 4	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)
	CHM 62XX	Elective Course 2 (Anal.)	Elective	CHM 6131	5 (5,0,0)
Exit Point* 33 Credit Hours					
Level 5	CHM 62XX	Elective Course 3 (Anal.)	Elective	CHM 6131	5 (5,0,0)
Level 6	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	10 (0,20,0)

* Include additional levels if needed

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

Elective Courses – Analytical Chemistry Track – List C

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 3	CHM 6132	Statistics in Analytical Chemistry	Elective	CHM 6131	5 (5,0,0)
	CHM 6133	Analytical Separation Methods	Elective	CHM 6131	5 (5,0,0)
Level 4	CHM 6234	Advanced Environmental Chemistry	Elective	CHM 6131	5 (5,0,0)
	CHM 6235	Electroanalytical Chemistry	Elective	CHM 6131	5 (5,0,0)
Level 5	CHM 6236	Spectroscopic Methods	Elective	CHM 6131	5 (5,0,0)
	CHM 6237	Selected topics in analytical chemistry	Elective	CHM 6131	5 (5,0,0)

Physical Chemistry Track (Phy.)

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	CHM 6121	Advanced Organic Chemistry	Required	-	5 (5,0,0)
	CHM 6131	Advanced Analytical Chemistry	Required	-	5 (5,0,0)
Level 2	CHM 6111	Inorganic Molecular Spectroscopy	Required	-	5 (5,0,0)
	CHM 6141	Advanced Physical Chemistry	Required	-	5 (5,0,0)
Level 3	CHM 61XX	Elective Course 1 (Phy.)	Elective	CHM 6141	5 (5,0,0)
	CHM 6190	Research Methods in Chemistry	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	2 (2,0,0)
Level 4	CHM 6295	Seminar	Required	CHM 6111, CHM 6121, CHM 6131, CHM 6141	1 (1,0,0)
	CHM 62XX	Elective Course 2 (Phy.)	Elective	CHM 6141	5 (5,0,0)
Level 5	CHM 62XX	Elective Course 3 (Phy.)	Elective	CHM 6141	5 (5,0,0)
Exit Point* 33 Credit Hours					
Level 6	CHM 6299	Master Thesis	Required	After completing 50% of the academic courses and with a GPA of 3.75 or above,	10 (0,20,0)

* Include additional levels if needed

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

Elective Courses –Physical Chemistry Track – List D

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 3	CHM 6142	Nanomaterials and Hybrid Materials	Elective	CHM 6141	5 (5,0,0)
	CHM 6143	Advanced kinetics - Heterogeneous Kinetics	Elective	CHM 6141	5 (5,0,0)
Level 4	CHM 6244	Catalysis and its industrial applications	Elective	CHM 6141	5 (5,0,0)
	CHM 6245	Advanced Electrochemistry and Corrosion	Elective	CHM 6141	5 (5,0,0)
	CHM 6246	Materials, Surfaces and Interfaces	Elective	CHM 6141	5 (5,0,0)
Level 5	CHM 6247	Advanced Quantum Chemistry	Elective	CHM 6141	5 (5,0,0)
	CHM 6248	Physical Applications of Green Chemistry	Elective	CHM 6141	5 (5,0,0)
	CHM 6249	Selected topics in physical Chemistry	Elective	CHM 6141	5 (5,0,0)

* Exit Point* :33 Credit Hours (with a GPA less than 3.75, that will not allow to Registration of the thesis, p.25 – Program Specification 2020)

3. Course Specifications

Insert hyperlink for all course specifications using NCAAA template

https://imamuedusa-my.sharepoint.com/:f:/g/personal/mkomran_cloud_imamu_edu_sa/Eh5m-eK5yrBNmsZkJUExVt4BJS4JetdvaJADUDrVOJiaOg?e=Zd3JLu

4. Program learning Outcomes Mapping Matrix

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

4.1 Inorganic Chemistry Track (*Inorg.*)

Course code & No.	LEVE L	Program Learning Outcomes									
		Knowledge and understanding				Skills				Values	
		K1. <i>Inorg.</i>	K2. <i>Inorg.</i>	K3. <i>Inorg.</i>	K4. <i>Inorg.</i>	S1. <i>Inorg.</i>	S2. <i>Inorg.</i>	S3. <i>Inorg.</i>	S4. <i>Inorg.</i>	V1. <i>Inorg.</i>	V2. <i>Inorg.</i>
CHM 6121	1	I	I	I	P	P	P	P	I	P	P
CHM 6131		I	I	I	P	P	P	P	I	P	P
CHM 6111	2	I	I	I	P	I	I	P	P	P	P
CHM 6141		P	P	M	P	P	P	P	M	P	P
CHM 6190	3	I	I	P	M	P	P	P	M	P	M
CHM 61XX (1)*		P	P	P	P	M	M	P	M	P	M
CHM 62XX (2)*	4	P	P	P	P	M	M	P	M	P	M
CHM 6295		P	P	P	P	M	M	P	M	P	M
CHM 62XX (3)*	5	P	P	P	P	M	M	P	M	P	M
CHM 6299	6	M	M	M	M	M	M	M	M	M	M
CHM 6112 (List A)	Elective Course	P	M	P	P	M	M	P	P	P	M
CHM 6113 (List A)		P	P	M	M	P	M	P	P	M	M
CHM 6114 (List A)		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

4.2 Organic Chemistry Track (*Org.*)

Course code & No.	LEVE L	Program Learning Outcomes									
		Knowledge and understanding				Skills				Values	
		K1. <i>Inorg.</i>	K2. <i>Inorg.</i>	K3. <i>Inorg.</i>	K4. <i>Inorg.</i>	S1. <i>Inorg.</i>	S2. <i>Inorg.</i>	S3. <i>Inorg.</i>	S4. <i>Inorg.</i>	V1. <i>Inorg.</i>	V2. <i>Inorg.</i>
CHM 6121	1	I	I	I	P	P	P	P	I	P	P
CHM 6131		I	I	I	P	P	P	P	I	P	P
CHM 6111	2	I	I	I	P	I	I	P	P	P	P
CHM 6141		P	P	M	P	P	P	P	M	P	P
CHM 6190	3	I	I	P	M	P	P	P	M	P	M
CHM 61XX (1)*		P	P	P	P	M	M	P	M	P	M
CHM 62XX (2)*	4	P	P	P	P	M	M	P	M	P	M
CHM 6295		P	P	P	P	M	M	P	M	P	M
CHM 62XX (3)*	5	P	P	P	P	M	M	P	M	P	M
CHM 6299	6	M	M	M	M	M	M	M	M	M	M
CHM 6112 (List A)	Elective Course	P	M	P	P	M	M	P	P	P	M
CHM 6113 (List A)		P	P	M	M	P	M	P	P	M	M
CHM 6114 (List A)		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

4.3. Analytical Chemistry Track (Anal.)

Course code & No.	LEVEL	Program Learning Outcomes									
		Knowledge and understanding				Skills				Values	
		K1. <i>Anal.</i>	K2. <i>Anal.</i>	K3. <i>Anal.</i>	K4. <i>Anal.</i>	S1. <i>Anal.</i>	S2. <i>Anal.</i>	S3. <i>Anal.</i>	S4. <i>Anal.</i>	V1. <i>Anal.</i>	V2. <i>Anal.</i>
CHM 6121	1	I	I	I	P	P	P	P	I	P	P
CHM 6131		I	I	I	P	P	P	P	I	P	P
CHM 6111	2	I	I	I	P	I	I	P	P	P	P
CHM 6141		P	P	M	P	P	P	P	M	P	P
CHM 6190	3	I	I	P	M	P	P	P	M	P	M
CHM 61XX (1)*		P	P	P	P	M	M	P	M	P	M
CHM 62XX (2)*	4	P	P	P	P	M	M	P	M	P	M
CHM 6295		P	P	P	P	M	M	P	M	P	M
CHM 62XX (3)*	5	P	P	P	P	M	M	P	M	P	M
CHM 6299	6	M	M	M	M	M	M	M	M	M	M
CHM 6132 (List C)	Elective Course	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 6234 (List C)		P	P	M	P	P	M	P	P	P	M
CHM 6235 (List C)		P	P	P	M	P	P	P	P	P	M
CHM 6236 (List C)		P	P	P	P	P	M	P	P	M	M
CHM 6237 (List C)		P	M	P	P	M	M	P	P	M	M

4.4. Physical Chemistry Track (Phy.)

Course code & No.	LEVE L	Program Learning Outcomes									
		Knowledge and understanding				Skills				Values	
		K1. Phy.	K2. Phy.	K3. Phy.	K4. Phy.	S1. Phy.	S2. Phy.	S3. Phy.	S4. Phy.	V1. Phy.	V2. Phy.
CHM 6121	1	I	I	I	P	P	P	P	I	P	P
CHM 6131		I	I	I	P	P	P	P	I	P	P
CHM 6111	2	I	I	I	P	I	I	P	P	P	P
CHM 6141		P	P	M	P	P	P	P	M	P	P
CHM 6190	3	I	I	P	M	P	P	P	M	P	M
CHM 61XX (1)*		P	P	P	P	M	M	P	M	P	M
CHM 62XX (2)*	4	P	P	P	P	M	M	P	M	P	M
CHM 6295		P	P	P	P	M	M	P	M	P	M
CHM 62XX (3)*	5	P	P	P	P	M	M	P	M	P	M
CHM 6299	6	M	M	M	M	M	M	M	M	M	M
CHM 6142 (List D)	Elective Course	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 6244 (List D)		M	P	P	M	P	M	P	M	M	M
CHM 6245 (List D)		M	P	M	P	P	M	P	P	P	M
CHM 6246 (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

* List A: Inorganic Chemistry Elective Course, List B: Organic Chemistry Elective Course, List C: Analytical Chemistry Elective Course, List D: Physical Chemistry Elective Course

Add a table for each track (if any)

5. Teaching and Learning Strategies to Achieve Program Learning Outcomes

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

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

The achieving of Strategic Goals of University, Collage with The Program goals will gain through the following initiatives..

- ✓ At the beginning of each Semester, the Syllabi are given to the students, containing the course's detailed information (Content of the Course, Credit Hours of the Course, Text Book information, Method of Evaluations, and Office Hours Schedule).
- ✓ The Courses Distribution is done according to the specialists of Faculty Stuff and their wishes.
- ✓ At the beginning of the Semester, a coordinator is nominated for coordination 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 Staff Evaluations of the Program
- ✓ Annual Faculty Staff Performance Evaluations.

The previous items are provided a good quality of teaching and learning strategies in achieving Program Learning Outcomes. All are monitoring by the department to ensure that teaching quality standards match the desired and required values.

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 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 have certain that their students understand and realized the learning objectives of their studies.
- Students should develop their progress in achieving their goals with sharing responsibility for their learning outcomes as the main 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 work together 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 in preparing mini-reports.
3. Required Materials submitted via Blackboard Classrooms to forward all Course materials, including a list of exercises, solutions of exams, etc. These materials can be used independently by the students for the best management of the course.
4. At least 6 office hours have to be announced for the students at the beginning of each course. The teacher has to discuss all course issues with the students.
5. Mini-projects are encouraged by students as an assessment—this assessment strengthens the students' independent work.
6. Regarding the thesis, 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. The supervisor starts to comply with the tasks affiliated with supervising the student's thesis after finalizing all the formal procedures to register this thesis mentioned in the D section.

6. Assessment Methods for Program Learning Outcomes.

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

Direct Assessment Methods

- National or regional exam results (developed outside the institution for use by a broad group of students using national or regional norms)
- Thesis and Seminar (CHM 6299, CHM 6295) Reports.
- Entrance/Exit Interviews/exams
- Performance (participation in campus and/or community events, volunteer work, presentations, etc).
- Course e-Portfolio
- Percentage of Success in all Courses.

Indirect Assessment Methods

- Alumni Survey
- Course Evaluation Survey
- Employer/industry Survey
- Program Advisory Committee minutes
- Observations (Information can be collected while observing “events” such as classes, social gatherings, activities, group work, study sessions, etc. Observation can provide information on student behaviours and attitudes)
- Average of the Graduate GPA’S
- Second Examiner checklist

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 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.
8. 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 scientific supervisor and his/her 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.
- 5) **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 defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense 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 be represented 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.

E. Student Admission and Support:

1. Student Admission and Transfer Requirements, and Courses Equivalency

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.
- f) 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. Student Counseling Services

(academic, career, psychological and social)

- 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.

3. Special Support

(low achievers, disabled, gifted and talented)

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

- Six parking
- Special pathway
- 8 lifts serving the college building
- Ten toilets.

F. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	Chemistry	Organic Chemistry		1	0	1
		Physical Chemistry		1	0	1
		Analytical Chemistry		1	0	1
		Inorganic Chemistry		1	0	1
Associate Professors	Chemistry	Organic Chemistry		1	1	2
		Physical Chemistry		1	1	2
		Analytical Chemistry		1	1	2
		Inorganic Chemistry		1	1	2
Assistant Professors	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)				-	-	-

2. Professional Development

2.1 Orientation for New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

One of the main tasks is:

- Equipping new faculty members with knowledge and skills that will require to reach the desired objectives, targeted skills, assessment methods, nature of research, etc
- Explaining to the new visiting or part-time teaching staff how to manipulate and deliver a course and assess the learning outcomes.
- Introduce to the new visiting or part-time teaching staff the nature of the university environment and constraints.

The selection of new staff members:

A. 1- For Saudi staff

The department usually studies the need for recruiting new teaching staff every year. Vacant positions are publicly advertised at The electronic Gate of University for jobs (<https://jobs.imamu.edu.sa/>). Appropriate applicants (are they selected according to Regulations governing the Employees' Affairs of Saudi Universities of faculty members) will be invited to give a scientific lecture in his topics. Then, he/she will be interviewed twice, the first one by a selected panel includes three academics in his specialist for scientific discussion to evaluate his background. The second interview undergoes specific evaluation criteria. For example, the applicants are being evaluated on their communication skills, self-confidence, general and knowledge. The applicant has to achieve at least 80 % of the criteria to be eligible for the position

2- For Non-Saudi staff:

In case of absence of Saudi staff in some special topics, Decisions and recommendations are then reported to the university Deanship of Faculty and Staff Affairs through the Dean of the College. Available positions are advertised by the Cultural Attaches in the approved countries and the University website. Applicants are interviewed by a selected panel. After checking and evaluating the applicant's documents, the panel will offer the successful nominees an initial contract offer. When the applicant accepts the offer, the University send visas to the Cultural Attachés. Upon arrival at the University, the new staff will sign the final contract.

B. The process used for the orientation of visiting Professor according to the Al Imam University process and policies (See: [IMSIU process and Policies](#))

2.2 Professional Development for Teaching Staff

Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

A. Improvement of skills in teaching and & learning strategies, learning outcomes assessment

All Department staff are encouraged to Regularly attend training and professional development workshops held within the University as the following:

- University Teaching and Learning (UTL)
- Teaching Assistant Training Program (TAT)
- Problem-based learning (PBL)
- Development of academic leadership
- Recent trends in student assessment
- Student-centered learning
- Measuring the educational outcomes in programs and courses
- Use of modern technologies in university teaching
- Construction achievement tests
- Active learning and its uses in university teaching
- Career and personal development programs at the University provide opportunities to build productive and satisfying careers while contributing to the achievement of the University's mission.
- Consultation and coordination in teaching are conducted throughout the academic year among the faculty members teaching the same courses.

- Regular meeting held within the Course Responsible and staff members of the same relevant courses to discuss and exchange ideas for improving teaching and learning strategies.

In addition, The strategies adopted in the department to improve the quality of teaching are :

- Modern technology and methods of teaching are used to illustrate the content of the courses through data show
- Course materials will be provided to the students using the blackboard: syllabus, teacher timetable, exercise lists, home-works, solutions of tests and exams, samples of previous, etc... Also, the students can use these folders to submit their home works and projects.
- Distributing updated edition of textbooks at the beginning of each semester.
- Participation in some training courses organized by the University under the "Development project, creativity, and excellence"
- Monitoring the performance of a faculty member through the course folder, the shared folder file, the report of the Course Responsible, the course report, the students' feedback.
- Most of the classrooms for teaching purposes are equipped with network connections, smartboard and data show

B. Other professional development including knowledge of research and developments in their field of teaching specialty?

- Teaching staff members are encouraged to develop on their teaching, and research, for innovation new teaching methods and achieve international standards of scientific research.
- The Deanship of Scientific Research annually announces small research projects to promote the scientific research of the faculty members and enforce the participation of students in these projects as an option, which helps to develop the skills of research, learning, and communication for students.
- Indeed, each year University awards are presented to academic staff for outstanding contributions to teaching, research supervision, and publishing as the following,
 - Award of the IMSIU Rector for Creativity in University teaching,
 - Research Excellence Award.
 - World Publishing Program.

G. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Policies and Procedure for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and 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 which heading by Course Responsible to provide the following:

- ✓ Course description (preliminary syllabus),
- ✓ Recommend Lists of Required Textbooks, Essential References Materials (Journals, Reports, etc.), Recommended Textbooks and Reference Material (Journals, Reports, etc.), Electronic Materials (e.g., Web Sites, Blackboard, etc.) and other learning materials such as Computer-based Programs and software.

STEP 2: CGC collects learning resources of all courses and submits the required lists to the department head to get the approbation of the department council.

STEP 3: After the department council approbation, the head of the Department asks the Dean of College to provide the Required lists of Learning Resources through the University Central Library and from Central Chemical Stores for chemicals and laboratory requirements.

2. Facilities and Equipment

Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories, medical facilities, 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. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

The Master of Science in Chemistry Program has special arrangements in the laboratories section as the following:

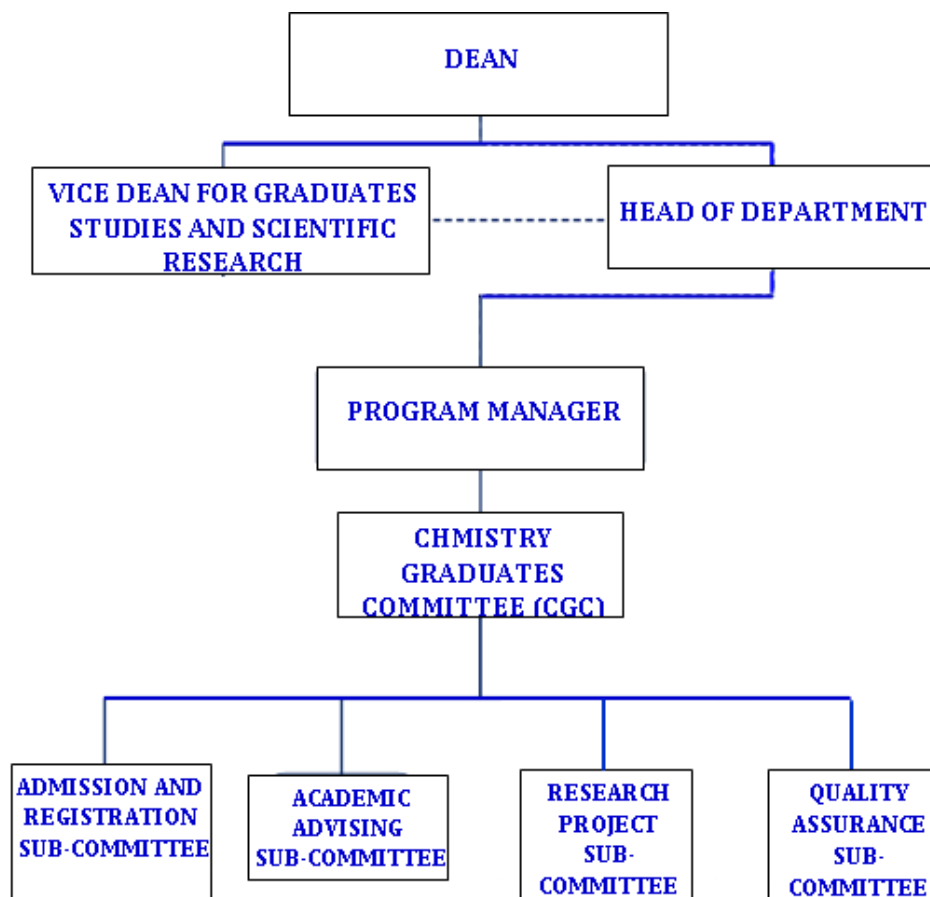
- In each laboratory, a list of safety and precautions is provided.
- In each lab has proper ventilation and is well equipped with instruments.
- In each lab, containers for solid waste, liquid waste, and crushed glasses.
- Each lab has a small pharmacy for first aid in case of an accident.
- In the entry of each lab and inside the lab, a table contains the phone number for:
 - A, Medical Centre
 - b, Safety and protection
 - c, Ambulance
 - d, Head of Department
- In each lab, the rules, conditions, and safety mechanism and a list of Risk, Safety precautions according to Merck Catalogue are hanging in the labs.
- A plan has been designed for students escaping from the labs. If an accident happened (fire, explosion, chemical bottle break, chemical hazard compound falls, etc.....)
- An emergency tool inside each lab.

H. Program Management and Regulations

1. Program Management

1.1 Program Structure

(including boards, councils, units, committees, etc.)



1.2 Stakeholders' Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

The program includes an advisory committee composed of representatives from the scientific research sector and industrial companies such as water companies, pharmaceuticals, and cement industries, representatives of students studying in the program, and graduates.

The departmental advisory committee can:

- Contribute to formulating the general economic, knowledge, and provisional specification or qualification of the program graduate by Saudi Vision 2030.
- Ensure that the program content meets stockholders' needs as defined by research, industry, and education.
- Identify the program requirements and determine imminent priorities.
- Periodically evaluate the effectiveness of the program SWAT.
- The advisory committee does NOT make policy or procedures; only recommendations that the governing body has the authority to review and accept or reject.

In addition, Questionnaires' of the Graduated student employers of the program will be provided.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

1- Guide for postgraduate students Imam Muhammad bin Saud Islamic University

<https://units.imamu.edu.sa/deanships/GRADUATE/Academic/Documents/leaflet02.pdf>

2. 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, its following the executive rules at Imam Muhammad bin Saud Islamic University 3931-1441/1442- in University Council meeting 9, at 6/7/1442.

<https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf>

3. the Rules regulating the Registration, Writing, Printing and submission of the thesis

https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law_2.pdf

4. Examination Regulations

<https://units.imamu.edu.sa/deanships/GRADUATE/Pages/g20/103.aspx>

5- Deanship of Postgraduate Studies Guidelines

<https://units.imamu.edu.sa/deanships/GRADUATE/Academic/Pages/default.aspx>

internal Policies and Regulations

Policies and regulations are regularly updated to reflect IMSIU's mission [IMSIU], and any policy changes are thoroughly discussed before being approved by the University Council.

Organization of exams (letter of Dean)

Course specification document provides detailed information about examination methods, date, duration, and topics whose will be covered/ midterms, quizzes and homework and mini/project. The syllabus is given to students at the beginning of class and it is published on the blackboard and the College website. Also, the course syllabus gives more details on learning outcomes, material, topic outlines, exams and grading system, student attendance\absence, Executive Rules for Study Regulations and Exams [<https://units.imamu.edu.sa/deanships/GRADUATE/Pages/g20/103.aspx>]

However, the final examination is specified with University's calendar and it is published in the form of a table regrouping all course examinations through the College website.

The examination event is managed by:

- follow up and exam unit
- departmental exam committee
- vice-deanship of graduate studies and scientific research
- College Scoring Committee
- Second examiners

Assessment Forms

The assessment forms aim to intensively, continually and compressively cover course learning objectives to monitor the individual student's achievement. Most of the forms of the assessment are the final exam and a multitude of other assessment forms midterm(s), quiz, homework, participation, mini-project,...), and during the semester intensively, comprehensively, and continuously for the forms of exams.

Students are informed at the beginning of the semester about examination requirements and forms through:

- Syllabus
- College website page
- Blackboard

Final exams and University calendar:

- Final Examination timetables are published and available for each semester. However, course syllabi specify the midterms during the first class.
- The final exam timetable is released four weeks before the examination period information regarding these timetables will not be available before these dates.
- The exam timetables can be accessed via the College website.

All these regulations based on <https://units.imamu.edu.sa/deanships/GRADUATE/Pages/g20/103.aspx>

Exams Regulations

Exam regulations are governed by "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, <https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf>" amended by the decision of the Higher Education Council No. 7/B/1418 as well as the Executive Rules of IMSIU No. 3931-1441-1442.

Examination regulations for Master degrees.

<https://units.imamu.edu.sa/deanships/GRADUATE/Pages/g20/103.aspx>

Student Affairs Regulations and Forms (Sport, Student Fund, Housing, Employment....).

<https://units.imamu.edu.sa/deanships/sa/fileslibrary/Pages/default.aspx>

Recruitment

The university appoints the administration staff after running a competition among the applicants. For the academic staff, jobs are advertised nationally and internationally through all kinds of media (like <https://jobs.imamu.edu.sa>, newspapers, and magazines) or the Saudi Cultural Office abroad. The university appoints the administration staff after running a competition among the applicants. Next, the Recruitment Committee appointed by the department examines submitted applications. It classifies them, those considered for a position, and those who do not meet the department's academic standards. Some of the candidates' applicants are interviewed via the online process (Skype). Others (particularly for the candidates in Saudi Arabia and neighboring countries) are interviewed personally by the college recruitment committee, including the department head. The Saudi assistants are appointed by the Recruitment Committee after selection and passing a writing exam.

The Program Manager is responsible for determining the number and the academic qualification of the teaching staff are sufficient for teaching and supervision via:

the recruitment processes:

a. Saudi Ph.D. owners: They are invited to do a presentation in the corresponding department and a personal interview with the department recruitment committee.

b. For Non-Saudi Ph.D. owners: They are invited via a web announcement to submit their CVs. If they are selected, they will have a personal interview with the department recruitment committee via Skype.

c. For Saudi BSc or MSc owners: They are invited to do a written exam according to their specialties via a web announcement. If they are selected, they will.

Thesis Assessment: See D. Thesis and Its Requirements. Section 3

I. Program Quality Assurance

1. Program Quality Assurance System

[دليل ضمان الجودة في كلية العلوم - OneDrive \(sharepoint.com\)](https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EVPGffZshIIotwp896mzTTEB23Z71rrZAK1fVIXqUH-cHA?e=o2rclD)

[https://imamuedusa-](https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EVPGffZshIIotwp896mzTTEB23Z71rrZAK1fVIXqUH-cHA?e=o2rclD)

[my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EVPGffZshIIotwp896mzTTEB23Z71rrZAK1fVIXqUH-cHA?e=o2rclD](https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EVPGffZshIIotwp896mzTTEB23Z71rrZAK1fVIXqUH-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)

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DQU structure and membership

Purpose

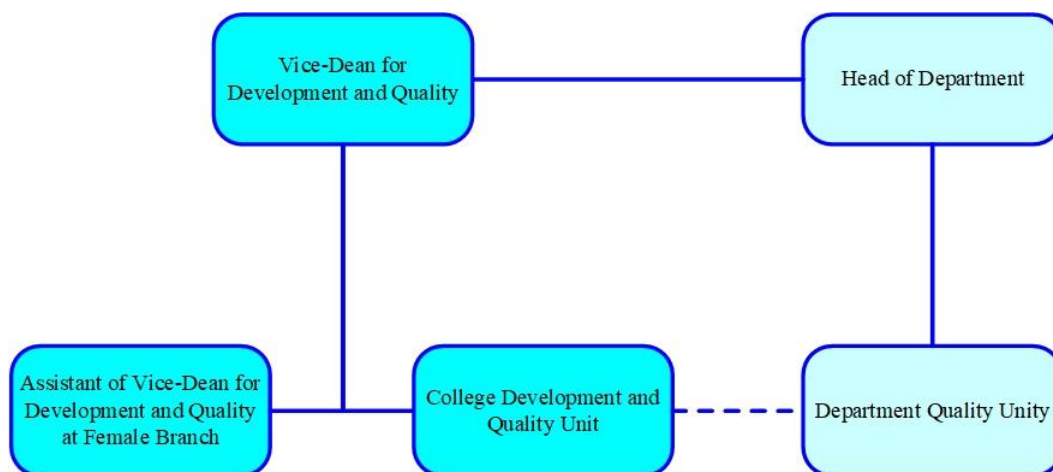
The purpose of the College Development and Quality Unit (CDQU) is to monitor and be responsible for the quality assurance process covering: planning, implementation and procedures, assessment, and improvement according to both NCAAA and University quality requirements within the College community.

On behalf of Vice-Deanship for Development and Quality, CDQU is accountable to the College Board for all aspects of academic quality assurance: the coordination, maintenance, and enhancement of quality and academic standards within the College. CDQU shall supervise all committees of accreditation of departments committees and related working teams.

Membership

The membership will be variable depending on the body structure and size of the College. CDQU (head, designed by the dean of the College of Science). The current membership is as follows:

- Head of the College Development and Quality Unit.
- Assistant of the Vice-Dean for Female Affairs;
- Heads of Department Quality Units (DQUs);
- Head of Statistical and Data Analysis Unit;
- Representatives of Departmental Quality Units at the Female Branch;
- Representative of College website manager.



Quality management, including quality assurance, is governed by CDQU based on quality-oriented governance with continuous development and improvement at the level of the College. Practically, CDQU utilizes the following management approach: To plan, coordinate, implement, assess, and orient all activities in the College towards compliance with the College's vision and convey its strategic goals.

At each department, a quality unit (QUD) is created. However, CDQU unifies all procedures, methods, and tools to ensure an integrated cyclical quality process over the College's departments and units and its academic programs, including teaching\learning quality.

At each department, a quality unit is established. However, CDQU unites all procedures, methods, and tools to ensure an integrated cyclical quality process over whole the College and its academic programs, including teaching\learning quality.

Review of Courses

The semester and annual reviews are milestones to the Department's quality management systems for each course's overall programs. The review of courses and program forms an integral part of the University, College, and Department quality assurance system.

The positive review requires effective involvement and coordination among the course responsible (CR), course coordinator (CC), teaching staff, Chemistry Graduate Committee, Head of Department, other faculty, and students.

The course responsible has to conduct the review for the course in cooperation with CGC under the Head of the Department's supervision. However, the course evaluation and recommendations are being addressed with the Head of Department. A report by CR focusing on the strengths-weakness and plans for identified improvement will submit to the Head of the Department annually.

Before the five-year cycle of self-study for the program, each course is reviewed at least once.

The main objective of the review of courses is to assess the followings:

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

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

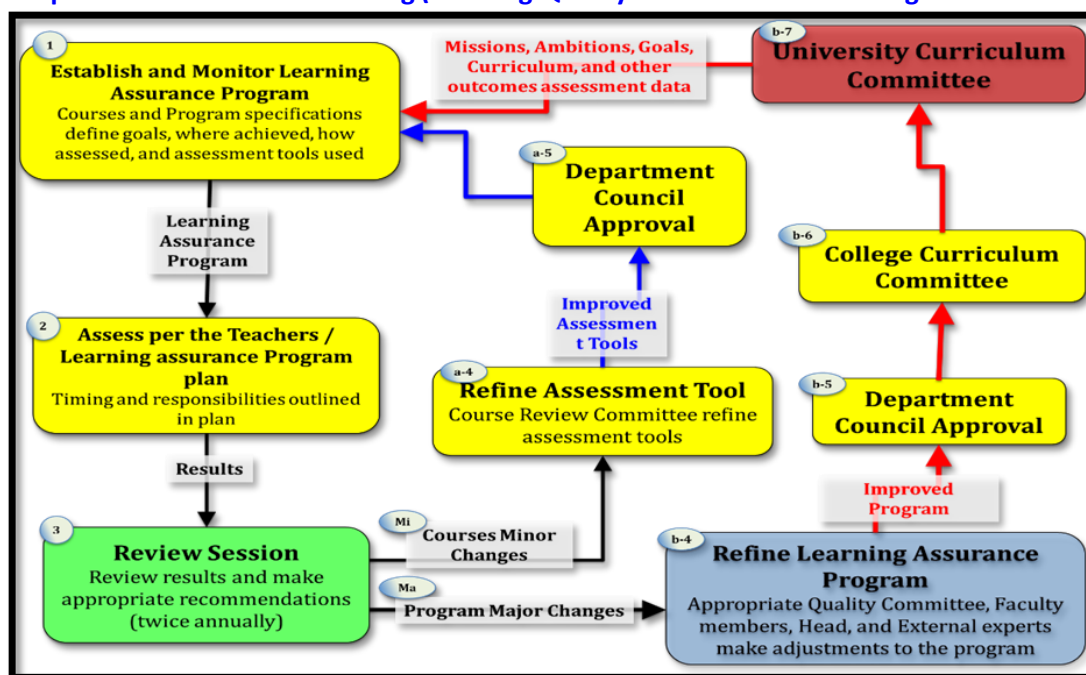
- ✓ Courses reports are submitted to the Course Responsible every semester.
- ✓ Course Responsible carries out a final review/audit of course documentation (Course e-portfolio) to ensure teaching schemes, assignments, and examination papers are relevant, current, and appropriate.
- ✓ Course Responsible 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:



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. Arrangements to Monitor Quality of Courses Taught by other Departments.

N. A.

4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)

The Department of Chemistry adopted the following processes to Ensure the Consistency between 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. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

N. A.

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes

Appendix 1

6. 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	✓		✓	✓		✓		✓

6. 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	✓		✓	✓	✓			✓

6.1.B: Map University's Goals with the Program's Goals –Organic Chemistry Track.

<i>Map University's Goals with the Program's Goals</i>									
<i>PLOs- Org.</i>	<i>Program's Goals</i>	<i>University's Goals</i>							
		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	✓		✓	✓	✓			✓

6.1.C: Map University's Goals with the Program's Goals –Analytical Chemistry Track.

<i>Map University's Goals with the Program's Goals</i>									
<i>PLOs- Anal.</i>	<i>Program's Goals</i>	<i>University's Goals</i>							
		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	✓		✓	✓	✓			✓

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

<i>Map University's Goals with the Program's Goals</i>									
<i>PLOs- Anal.</i>	<i>Program's Goals</i>	<i>University's Goals</i>							
		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 that is 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.

6. 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)

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

<i>College's Goals</i>	<i>PLOs- Inorg.</i>
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.

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

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

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

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

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

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

Map College's Goals with University's Goals :

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

6.3.A. Map College's Goals with the Program's Goals –Inorganic Chemistry Track

Map College's Goals with the Program's Goals

PLOs	Program's Goals	College'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	✓	✓	✓	✓	✓

6.3.B. Map College's Goals with the Program's Goals –Organic Chemistry Track

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

6.3.C. Map College's Goals with the Program's Goals –Analytical Chemistry Track

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

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

<i>Map Collage's Goals with the Program's Goals</i>						
<i>PLOs</i>	<i>Program's Goals</i>	<i>Collage's Goals</i>				
		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 exams 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' feedbacks.
- 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;
- ✓ learning 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.

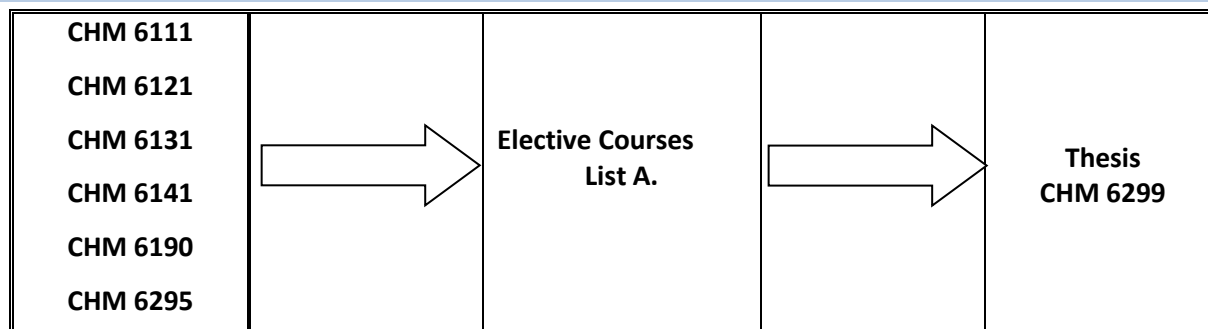
This process supports the Department effectiveness, organize and evaluates systematic assessment to improve the Department's planning continuously, and a decision making.

Program Assessment Flow

A: *Inorganic Chemistry Track*

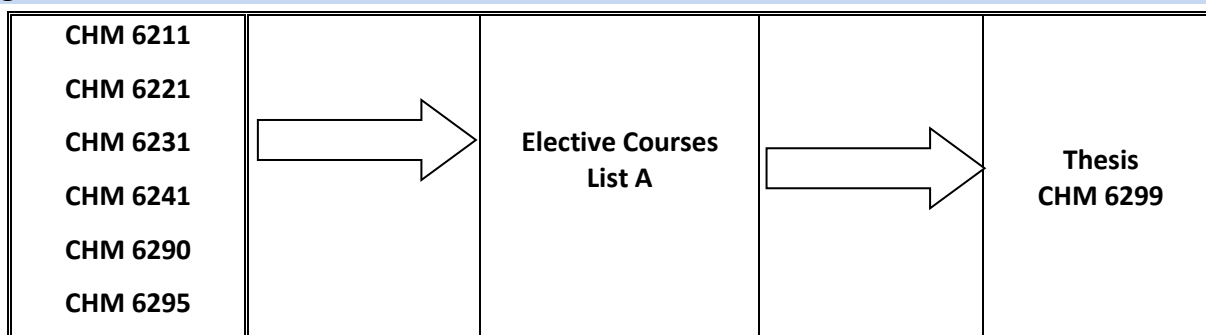
Program Goals 1	
Goal Code	Statement
PG 1	Providing the Graduates with an attractive environment in the teaching and research fields for the distinguished wishing to study the specialty of chemistry
Specific LOs to be assessed	To list comprehensive and consistent deep of Inorganic Chemistry principles and concepts required and related topics.
	To define the Plane of Symmetry, Inversion Centre, Point groups, Chirality, and Symmetry Operations, in Inorganic Chemistry and related fields.
	To describe the newest progress and development in Inorganic Chemistry and related fields that serve the specialty.
	To Compare and evaluate concepts and theories of Symmetry Elements and Symmetry Operations by exploring Plane of Symmetry, Inversion Centre, Point groups, Chirality and Symmetry Operations
	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.
	To summarize research results related to Industrial Inorganic Chemistry and Advanced Composite Materials by using IT and available digital tools.
	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

Program Goal 1 Assessment flow



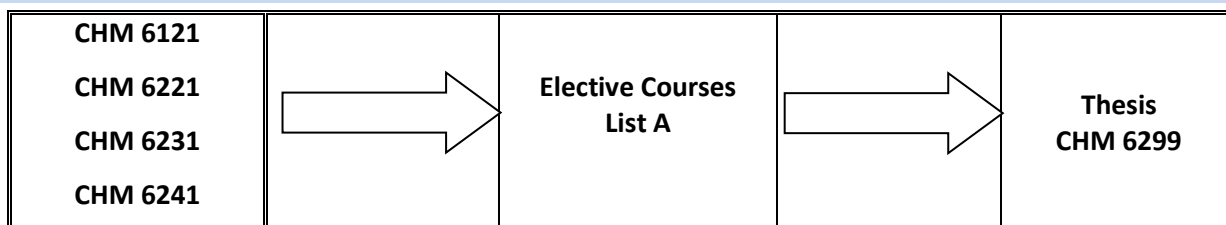
Program Goals 2	
Goal Code	Statement
PG 2	Qualifying the Graduates with the necessary skills to work in the research and industrial fields and to pursue higher studies
Specific LOs to be assessed	To define the Plane of Symmetry, Inversion Centre, Point groups, Chirality, and Symmetry Operations, in Inorganic Chemistry and related fields.
	To describe the newest progress and development in Inorganic Chemistry and related fields that serve the specialty.
	To outline Transition Metal Preparation, and Metal-Ligand bonding theories to develop, update, and present information inclusive of various or relevant topics.
	To Compare and evaluate concepts and theories of Symmetry Elements and Symmetry Operations by exploring Plane of Symmetry, Inversion Centre, Point groups, Chirality and Symmetry Operations
	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.
	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 Goal 2 Assessment flow



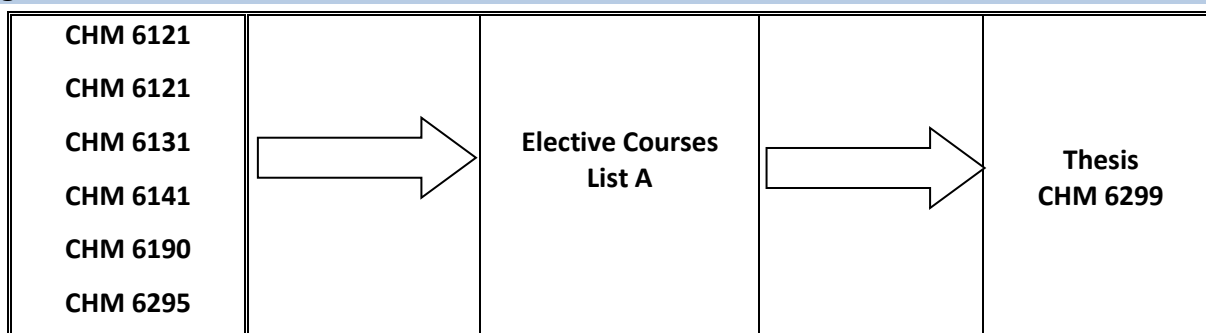
Program Goals 3	
Goal Code	Statement
PG 3	Developing the capabilities of the Graduates in the field of using modern equipment and techniques in the specialty of chemistry.
Specific LOs to be assessed	To define the Plane of Symmetry, Inversion Centre, Point groups, Chirality, and Symmetry Operations, in Inorganic Chemistry and related fields.
	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.
	To interpret Electronic Absorption Spectroscopy, metals routes inside the biological system, Morse Potential Energy Diagram
	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
	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 Goal 3 Assessment flow



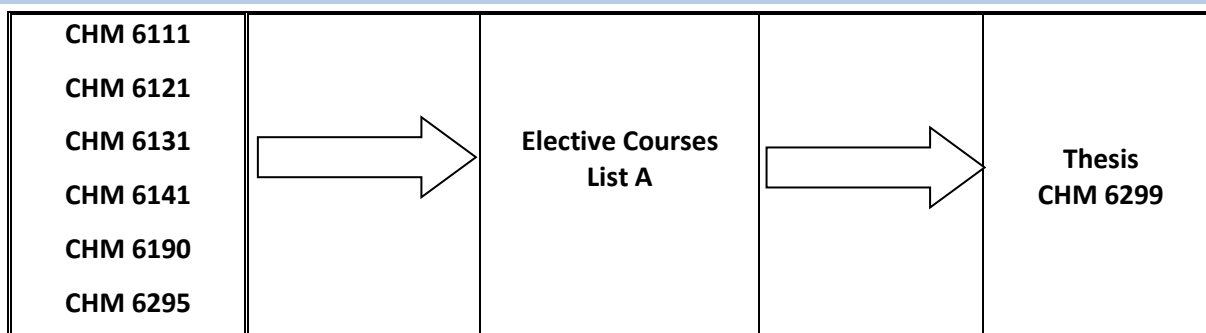
Program Goals 4	
Goal Code	Statement
PG 4	Enhancing the capabilities of <u>Graduates</u> in investigation, research and conclusion in the field of scientific research
Specific LOs to be assessed	To define the Plane of Symmetry, Inversion Centre, Point groups, Chirality, and Symmetry Operations, in Inorganic Chemistry and related fields.
	To describe the newest progress and development in Inorganic Chemistry and related fields that serve the specialty.
	To outline Transition Metal Preparation, and Metal-Ligand bonding theories to develop, update, and present information inclusive of various or relevant topics.
	To Compare and evaluate concepts and theories of Symmetry Elements and Symmetry Operations by exploring Plane of Symmetry, Inversion Centre, Point groups, Chirality and Symmetry Operations
	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.
	To summarize research results related to Organic Chemistry and its relevant topics by using IT and available digital tools.
	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.
	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 Goal 4 Assessment flow



Program Goals 5	
Goal Code	Statement
PG 5	Increasing and refining the Graduate's competitive ability and knowledge and skill qualification to meet the needs of the labor market and the promising economic growth of Vision 2030.
Specific LOs to be assessed	To define the Plane of Symmetry, Inversion Centre, Point groups, Chirality, and Symmetry Operations, in Inorganic Chemistry and related fields.
	To describe the newest progress and development in Inorganic Chemistry and related fields that serve the specialty.
	To outline Transition Metal Preparation, and Metal-Ligand bonding theories to develop, update, and present information inclusive of various or relevant topics.
	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.
	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
	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 Goal 5 Assessment flow

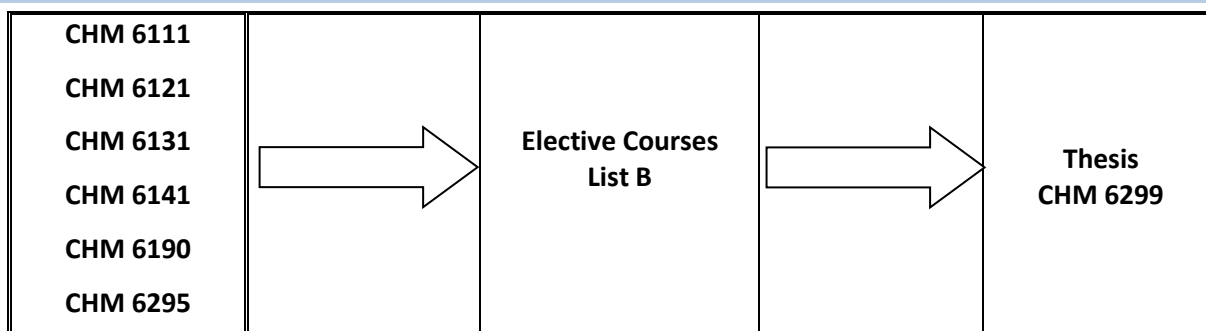


Program Assessment Flow

B: *Organic Chemistry Track*

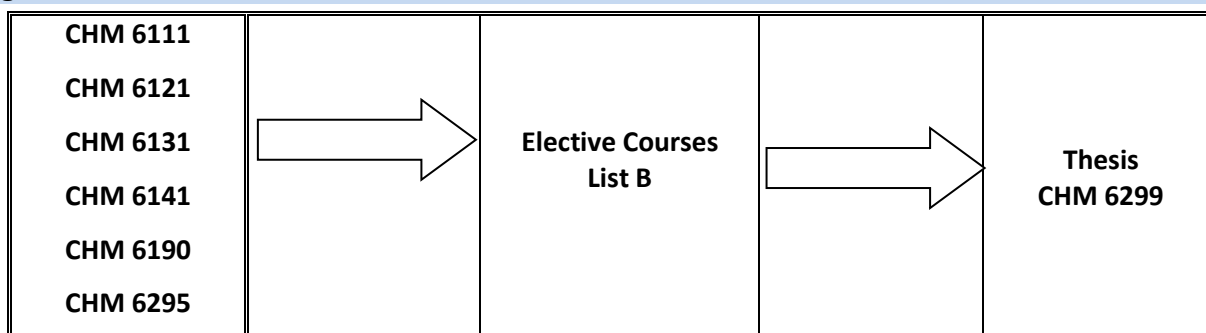
Program Goals 1	
Goal Code	Statement
PG 1	Providing the Graduates with an attractive environment in the teaching and research fields for the distinguished wishing to study the specialty of Chemistry.
Specific LOs to be assessed	To list comprehensive and consistent Organic Chemistry principles and concepts required in Organic Chemistry and related topics.
	To define the full required knowledge of Chemical Synthesis, Full elucidation of Chemical Structures or methods, and tools, in Organic Chemistry and related fields.
	To state the newest progress and development in Organic Chemistry and related fields that serve the specialty.
	To develop and evaluate Synthetic Methods, based on Molecular Structure, Stereochemistry, Functional Groups, and reactivity relationships.
	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.
	To summarize research results related to Organic Chemistry and its relevant topics by using IT and available digital tools.
	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 Goal 1 Assessment flow



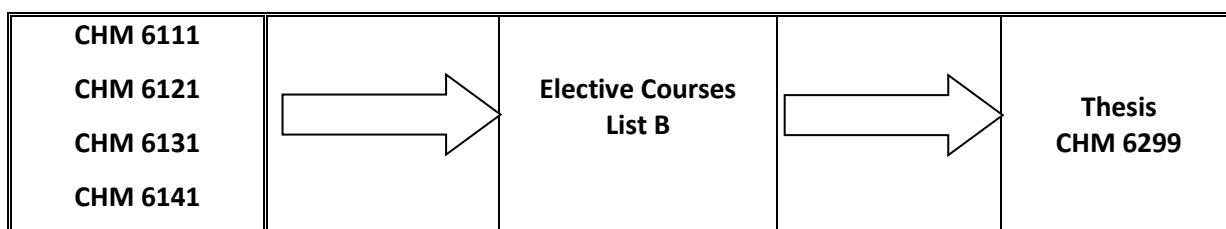
Program Goals 2	
Goal Code	Statement
PG 2	Qualifying the Graduates with the necessary skills to work in the research and industrial fields and to pursue higher studies
Specific LOs to be assessed	To define the full required knowledge of Chemical Synthesis, Full elucidation of Chemical Structures or methods, and tools, in Organic Chemistry and related fields
	To state the newest progress and development in Organic Chemistry and related fields that serve the specialty.
	To outline the Organic Chemistry Principals to develop, update, and present information inclusive of its various or relevant topics.
	To develop and evaluate Synthetic Methods, based on Molecular Structure, Stereochemistry, Functional Groups, and reactivity relationships.
	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.
	To interpret and analyze Organic Compounds structures to predict and postulate the Organic Reaction Mechanism support a reasonable argument.
	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 Goal 2 Assessment flow



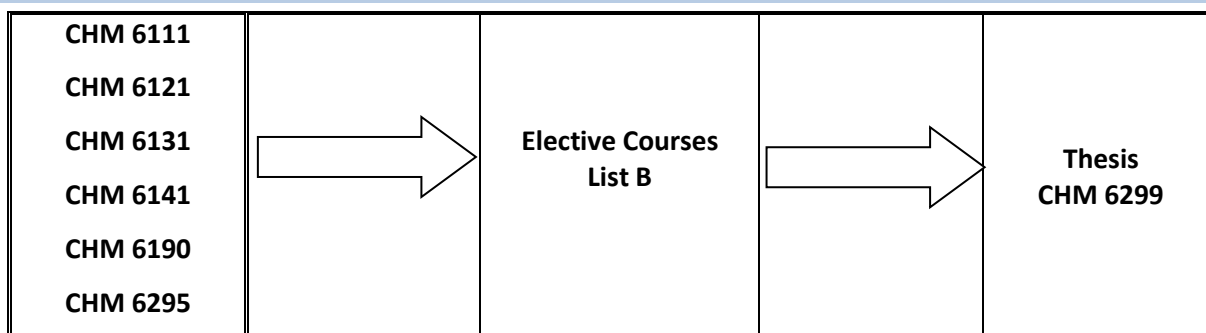
Program Goals 3	
Goal Code	Statement
PG 3	Developing the capabilities of the Graduates in the field of using modern equipment and techniques in the specialty of chemistry.
Specific LOs to be assessed	To define the full required knowledge of Chemical Synthesis, Full elucidation of Chemical Structures or methods, and tools, in Organic Chemistry and related fields
	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.
	To interpret and analyze Organic Compounds structures to predict and postulate the Organic Reaction Mechanism support a reasonable argument.
	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
	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 Goal 3 Assessment flow



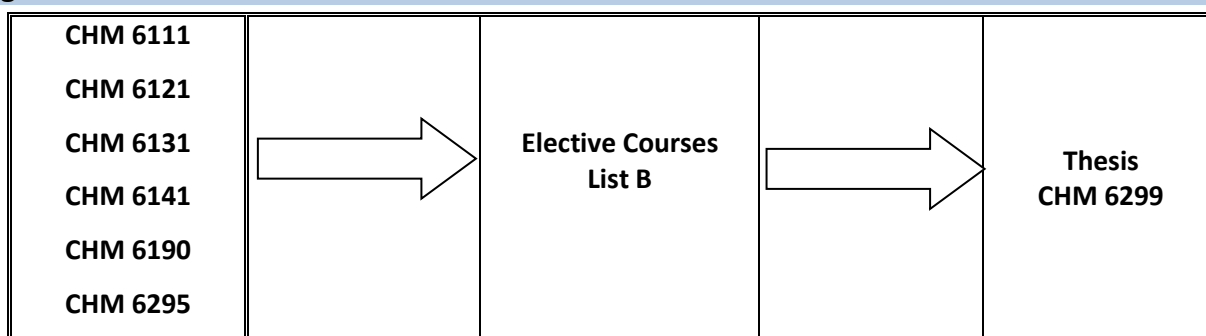
Program Goals 4	
Goal Code	Statement
PG 4	Enhancing the capabilities of <u>Graduates</u> in investigation, research and conclusion in the field of scientific research
Specific LOs to be assessed	To define the full required knowledge of Chemical Synthesis, Full elucidation of Chemical Structures or methods, and tools, in Organic Chemistry and related fields
	To state the newest progress and development in Organic Chemistry and related fields that serve the specialty.
	To outline the Organic Chemistry Principals to develop, update, and present information inclusive of its various or relevant topics.
	To develop and evaluate Synthetic Methods, based on Molecular Structure, Stereochemistry, Functional Groups, and reactivity relationships.
	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.
	To summarize research results related to Organic Chemistry and its relevant topics by using IT and available digital tools.
	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
	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 Goal 4 Assessment flow



Program Goals 5	
Goal Code	Statement
PG 5	Increasing and refining the Graduate's competitive ability and knowledge and skill qualification to meet the needs of the labor market and the promising economic growth of Vision 2030.
Specific LOs to be assessed	To define the full required knowledge of Chemical Synthesis, Full elucidation of Chemical Structures or methods, and tools, in Organic Chemistry and related fields
	To state the newest progress and development in Organic Chemistry and related fields that serve the specialty.
	To outline the Organic Chemistry Principals to develop, update, and present information inclusive of its various or relevant topics.
	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..
	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
	To show effective capabilities in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

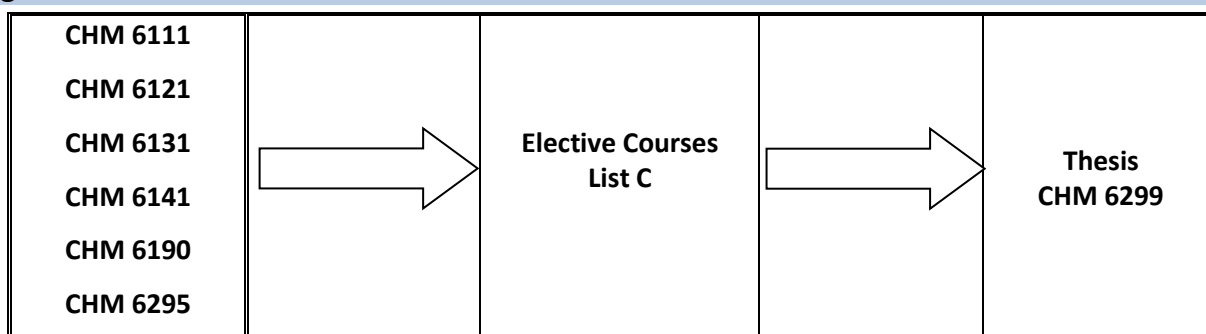
Program Goal 5 Assessment flow



C: Analytical Chemistry Track

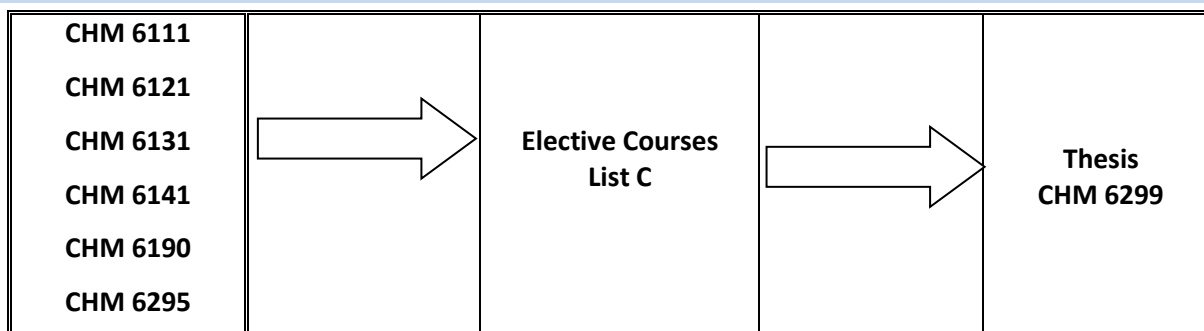
Program Goals 1	
Goal Code	Statement
PG 1	Providing the Graduates with an attractive environment in the teaching and research fields for the distinguished wishing to study the specialty of chemistry
Specific LOs to be assessed	To list a broad and consistent Analytical Chemistry principles and concepts and related topics.
	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.
	To describe the newest progress and development in Analytical Chemistry and related fields that serve the specialty.
	To justify Modern Analytical Atomic Spectroscopy Methods and Electrochemical analytical techniques in Environmental Chemistry and Water Pollution.
	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.
	To summarize research results related to Analytical Chemistry and its relevant topics in Environmental Chemistry by using IT and available digital tools.
	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 Goal 1 Assessment flow



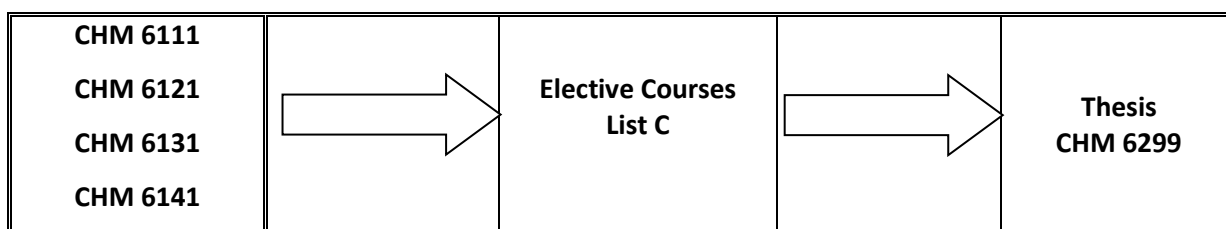
Program Goals 2	
Goal Code	Statement
PG 2	Qualifying the Graduates with the necessary skills to work in the research and industrial fields and to pursue higher studies.
Specific LOs to be assessed	To define a full required Principles of Contaminant behavior in the aquatic system and the fate of pollutants, Modern Analytical Atomic Spectroscopy Methods, and related fields.
	To describe the newest progress and development in Analytical Chemistry and related fields that serve the specialty.
	To outline the Analytical Chemistry Principals and methods to develop, update, and present information inclusive of its various or relevant topics.
	To justify Modern Analytical Atomic Spectroscopy Methods and Electrochemical analytical techniques in Environmental Chemistry and Water Pollution.
	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.
	To explain Computed and Statistical Data with justification obtained in Analytical Chemistry.
	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 Goal 2 Assessment flow



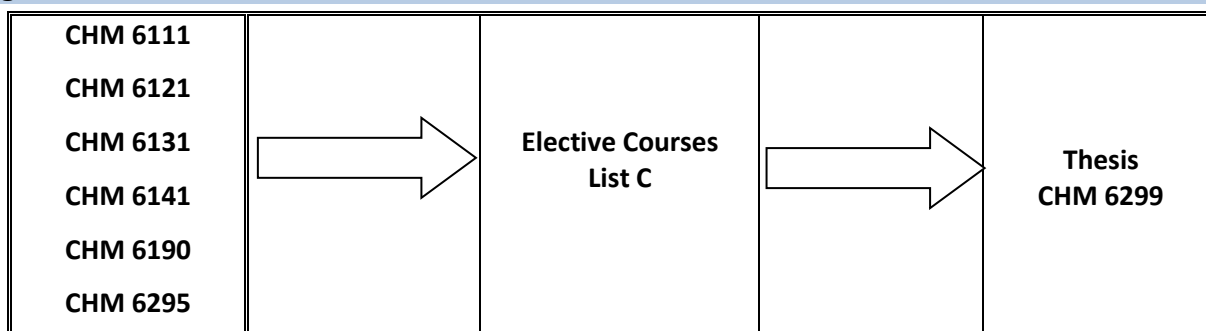
Program Goals 3	
Goal Code	Statement
PG 3	Developing the capabilities of the Graduates in the field of using modern equipment and techniques in the specialty of chemistry.
Specific LOs to be assessed	To define a full required Principles of Contaminant behavior in the aquatic system and the fate of pollutants, Modern Analytical Atomic Spectroscopy Methods, and related fields.
	To describe the newest progress and development in Analytical Chemistry and related fields that serve the specialty.
	To outline the Analytical Chemistry Principals and methods to develop, update, and present information inclusive of its various or relevant topics.
	To explain Computed and Statistical Data with justification obtained in Analytical Chemistry.
	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
	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 Goal 3 Assessment flow



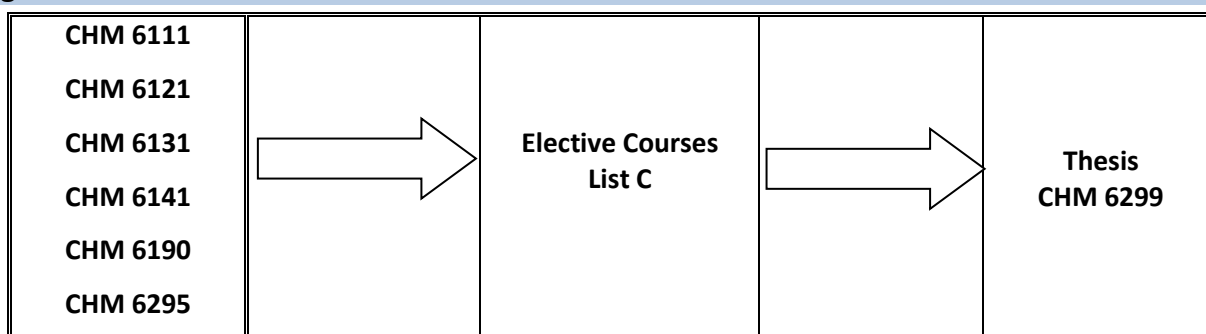
Program Goals 4	
Goal Code	Statement
PG 4	Enhancing the capabilities of <u>Graduates</u> in investigation, research and conclusion in the field of scientific research
Specific LOs to be assessed	To define a full required Principles of Contaminant behavior in the aquatic system and the fate of pollutants, Modern Analytical Atomic Spectroscopy Methods, and related fields.
	To describe the newest progress and development in Analytical Chemistry and related fields that serve the specialty.
	To outline the Analytical Chemistry Principals and methods to develop, update, and present information inclusive of its various or relevant topics.
	To justify Modern Analytical Atomic Spectroscopy Methods and Electrochemical analytical techniques in Environmental Chemistry and Water Pollution.
	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.
	To summarize research results related to Analytical Chemistry and its relevant topics in Environmental Chemistry by using IT and available digital tools.
	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 Goal 4 Assessment flow



Program Goals 5	
Goal Code	Statement
PG 5	Increasing and refining the Graduate's competitive ability and knowledge and skill qualification to meet the needs of the labor market and the promising economic growth of Vision 2030.
Specific LOs to be assessed	To list a broad and consistent Analytical Chemistry principles and concepts and related topics.
	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.
	To describe the newest progress and development in Analytical Chemistry and related fields that serve the specialty.
	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.
	To explain Computed and Statistical Data with justification obtained in Analytical Chemistry.
	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
	To show effective capabilities in own research or professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement.

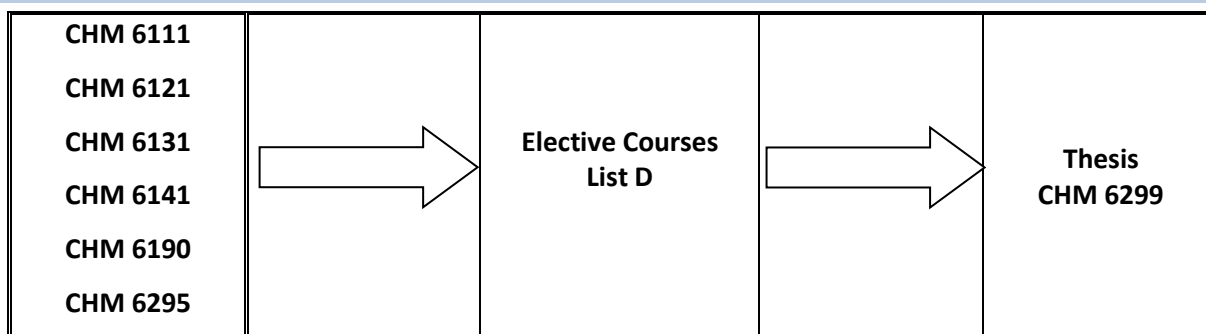
Program Goal 5 Assessment flow



D: *Physical Chemistry Track*

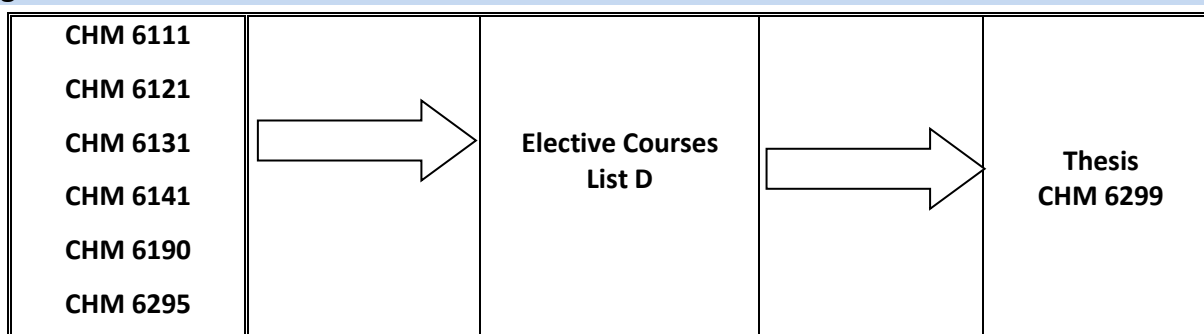
Program Goals 1	
Goal Code	Statement
PG 1	Providing the Graduates with an attractive environment in the teaching and research fields for the distinguished wishing to study the specialty of chemistry
Specific LOs to be assessed	To list a broad and consistent deep of Physical Chemistry principles, concepts and theories required and related topics
	To define a full required knowledge of thermodynamics and kinetics for materials and materials processes
	To describe the newest progress and development in Physical Chemistry and related fields that serve the specialty.
	To evaluate Kinetics, Thermodynamics, and Materials Science and its applications in Nanomaterials, and Hybrid Materials.
	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.
	To summarize research results related to Corrosions, Catalysis and Nanomaterials and Hybrid Materials and its relevant topics by using IT and available digital tools.
	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 Goal 1 Assessment flow



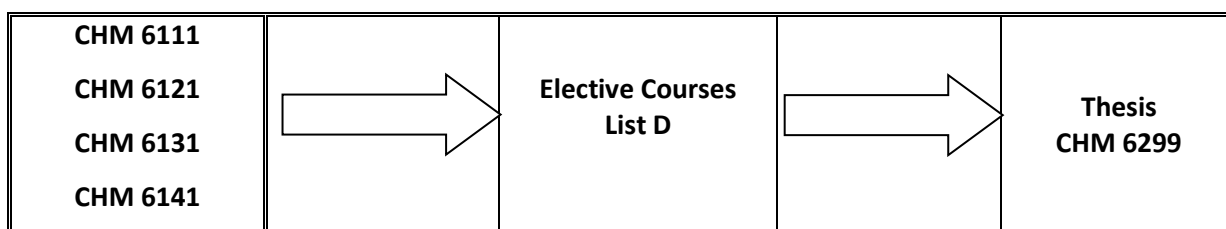
Program Goals 2	
Goal Code	Statement
PG 2	Qualifying the Graduates with the necessary skills to work in the research and industrial fields and to pursue higher studies
Specific LOs to be assessed	To list a broad and consistent deep of Physical Chemistry principles, concepts and theories required and related topics
	To define a full required knowledge of thermodynamics and kinetics for materials and materials processes
	To summarize Hybrid Materials, Nanocomposites, and Bimetallic Corrosion structures, applications, and Polarization resistance to develop, update, and present information..
	To evaluate Kinetics, Thermodynamics, and Materials Science and its applications in Nanomaterials, and Hybrid Materials.
	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
	To compare reactivity at the interfaces of different Materials with applications as Biosensors and Catalysis.
	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 Goal 2 Assessment flow



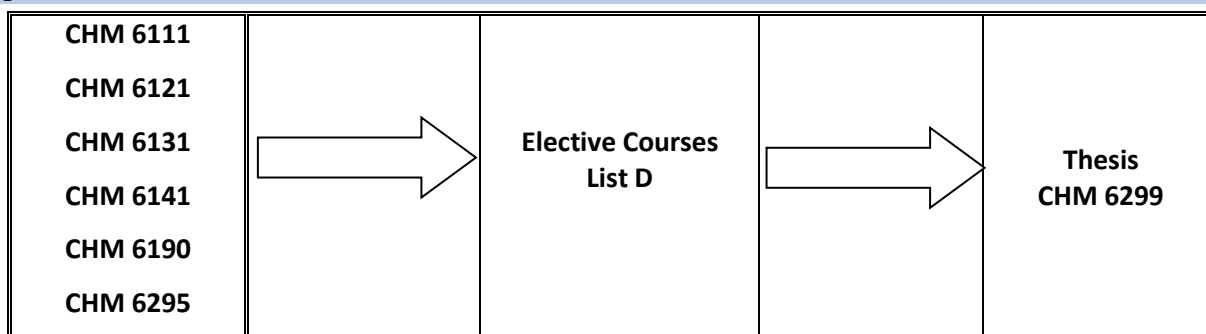
Program Goals 3	
Goal Code	Statement
PG 3	Developing the capabilities of the Graduates in the field of using modern equipment and techniques in the specialty of chemistry.
Specific LOs to be assessed	To define a full required knowledge of thermodynamics and kinetics for materials and materials processes
	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.
	To compare reactivity at the interfaces of different Materials with applications as Biosensors and Catalysis
	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
	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 Goal 3 Assessment flow



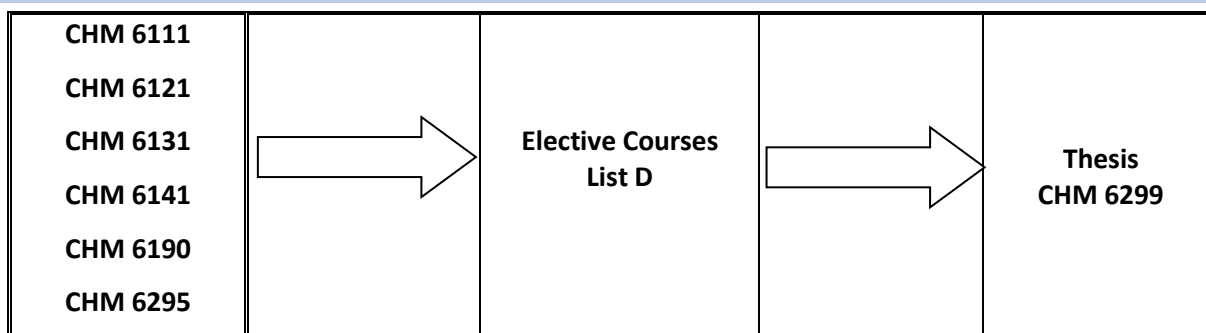
Program Goals 4	
Goal Code	Statement
PG 4	Enhancing the capabilities of <i>Graduates</i> in investigation, research and conclusion in the field of scientific research
Specific LOs to be assessed	To define a full required knowledge of thermodynamics and kinetics for materials and materials processes
	To describe the newest progress and development in Physical Chemistry and related fields that serve the specialty.
	To summarize Hybrid Materials, Nanocomposites, and Bimetallic Corrosion structures, applications, and Polarization resistance to develop, update, and present information.
	To evaluate Kinetics, Thermodynamics, and Materials Science and its applications in Nanomaterials, and Hybrid Materials.
	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.
	To summarize research results related to Corrosions, Catalysis and Nanomaterials and Hybrid Materials and its relevant topics by using IT and available digital tools.
	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 Goal 4 Assessment flow



Program Goals 5	
Goal Code	Statement
PG 5	Increasing and refining the Graduate's competitive ability and knowledge and skill qualification to meet the needs of the labor market and the promising economic growth of Vision 2030.
Specific LOs to be assessed	To define a full required knowledge of thermodynamics and kinetics for materials and materials processes
	To describe the newest progress and development in Physical Chemistry and related fields that serve the specialty.
	To summarize Hybrid Materials, Nanocomposites, and Bimetallic Corrosion structures, applications, and Polarization resistance to develop, update, and present information.
	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.
	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
	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 Goal 5 Assessment flow



7. 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 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 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, partnerships, etc.)

Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify))

Evaluation Methods (e.g., Surveys, interviews, visits, etc.)

Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

Program KPIs*

The period to achieve the target (4-5) year.

No	KPIs Code	KPIs	Target	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
6	KPI-PG-6	Rate of students dropping out of the program	0.3	Graduation data	Yearly starting from the first promotion
7	KPI-PG-7	Graduates' employability	85%	Graduation Unit	Yearly starting from the first promotion
8	KPI-PG-8	Employers' evaluation of the program graduates' competency	4.80	surveys	Yearly starting from the first promotion
9	KPI-PG-9	Students' satisfaction with the provided services	4.60	surveys	Yearly
10	KPI-PG-10	Ratio of students to faculty members	10/1	Department data	Yearly
11	KPI-PG-11	Percentage of faculty members' distribution based on academic ranking		Department data	Yearly
12	KPI-PG-12	Proportion of faculty members leaving the program	0.1	Department data	Yearly
13	KPI-PG-13	Satisfaction of beneficiaries with learning resources	4.50	surveys	Yearly
14	KPI-PG-14	Satisfaction of beneficiaries with research facilities and equipment	4.60	surveys	Yearly
15	KPI-PG-15	Percentage of publications of faculty members	85%	Department data	Yearly
16	KPI-PG-16	Rate of published research per faculty member	2.00-4.00	Department data	Yearly
17	KPI-PG-17	Citations rate in refereed journals per faculty member	60	Department data	Yearly
18	KPI-PG-18	Percentage of students' publication	90%	Department data	Yearly starting from the first promotion
19	KPI-PG-19	Number of patents, innovative products, and awards of excellence	1.00	Department data	Yearly

* including KPIs required by NCAAA

I. Specification Approval Data

Council / Committee	COUNCIL OF DEPARTEMENT OF CHEMISTRY
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