هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد
NCAAA

2024
TP-151

Program Specification
(Bachelor)

Program:	**Bachelor of Science in Chemistry**
Program Code (as per Saudi university ranking):	**053101**
Qualification Level: **6**	**Sublevel:** 645 (SASCED-2020)
Department:	**Chemistry**
College:	**Science**
Institution:	**Imam Mohammad Ibn Saud Islamic University**
Program Specification:	**New** ☐ **updated*** ☒
Last Review Date:	**5/3/2025**

*Attach the previous version of the Program Specification.

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A. Program Identification and General Information

1. Program's Main Location :
Main Campus.
2. Branches Offering the Program (if any):
None.
3. Partnerships with other parties (if any) and the nature of each:
None.
4. Professions/jobs for which students are qualified دليل التصنيف السعودي الموحد للمهن (masar.sa), **https://eservices.masar.sa/UCG/''#**

At the end of the program, students will be prepared for careers that require problem-solving and creative thinking abilities in chemistry or related fields. Professions or occupations the program is designed to prepare graduates for are:

- **Education Employers:** Public schools, Private schools, Colleges and Universities.
- **Government Areas:** Governmental and private sector chemical laboratories, Research & Development laboratories, and Administration Employers.
- **Industry Areas:** Quality Control Laboratories in pharmaceutical, food, mining, detergents, Environmental protection agencies, and other chemical Industries

The following table shows Professional Occupations/Jobs for the Chemistry Program graduates

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

التصنيف السعودي الموحد للمهن | الهيئة العامة للإحصاء (stats.gov.sa)

- **Education Employers: Chemical Laboratories in Public and Private Schools, Colleges, and Universities.**
- **Government Areas: Governmental and private sector chemical laboratories, Research & Development laboratories, and Administration Employers.**
- **Industry Areas: Quality Control Laboratories in pharmaceutical, food, mining, detergents, Environmental protection agencies, petrochemicals and other chemical Industries**

	Code	Professional Name
1	211301	**Chemist** **دليل التصنيف السعودي الموحد للمهن(masar.sa)**
2	211302	**Chemist for Industrial Sector** **دليل التصنيف السعودي الموحد للمهن(masar.sa)**

B- Based on the Unified Saudi Occupational Classification Guide

	Code	Professional Name
1	211301	**Chemist** تفاصيل المهنة | الهيئة العامة للإحصاء(stats.gov.sa)
2	211302	**Industrial Chemist** تفاصيل المهنة | الهيئة العامة للإحصاء(stats.gov.sa)
3	211304	**petrochemical industries Chemist** تفاصيل المهنة | الهيئة العامة للإحصاء(stats.gov.sa)
4	232005	**Applied science instructor Chemistry** تفاصيل المهنة | الهيئة العامة للإحصاء(stats.gov.sa)
5	233011	**teacher for Secondary School** تفاصيل المهنة | الهيئة العامة للإحصاء(stats.gov.sa)
6	211303	**Chemist for Pharmaceutical Sciences and health sector labs** تفاصيل المهنة | الهيئة العامة للإحصاء(stats.gov.sa)

5. Relevant occupational/ Professional sectors:

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

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
Bachelor of Science in Chemistry	**136**	**Education employers, government and Industrial areas, health sector, water treatment and purification sector (see section 4,5)**

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

exit points/awarded degree	Credit hours

After spending two full-time academic years of study with a minimum of 66 Credit Hours (According to NQF (1444-2023)- p.23,29,33, minimum 60 Credit Hours)/ sublevel 544- (SASCED-2020)/ Diploma of Science in Chemistry	**After the completion of at least 66 credit hours, where at least 39 credit hours should be from Chemistry courses (course code CHM), and, in addition, two mandatory courses of University, 1001 عرب – 1101 قرا**

Professional Occupations/Jobs for Exit Points

Exit Point	Credit Hours (For each track)	Professional Occupations/Jobs For Exit Point- *Diploma of Science in Chemistry*
***Diploma of Science in Chemistry*-sublevel 544- (SASCED-2020)**	**After the completion of at least 66 credit hours, where at least 39 credit hours should be from Chemistry courses (course code CHM), and, in addition, two mandatory courses of University, 1001 عرب – 1101 قرا**	**A. According to the classification of the Ministry of Human Resources)**

	Code	Professional Name
1	311903	Assurance Technician فني جودة(assistant-مساعد) دليل التصنيف السعودي الموحد للمهن(masar.sa)
2	311907	Laboratory Science Technician (محضر مختبر علوم) دليل التصنيف السعودي الموحد للمهن(masar.sa)
3	311108	فني مختبر علمي دليل التصنيف السعودي الموحد للمهن(masar.sa)
4	311602	فني مصانع كيميائية دليل التصنيف السعودي الموحد للمهن(masar.sa)

B. According to the Unified Saudi Occupational Classification Guide

	Code	Professional Name
1	311104	Chemical Technician فنى كيميائى
2	311108	Laboratory Science Technician محضر مختبر علمى
3	311602	فنى مصانع كيميائية
4	311905	فنى كفاءة إنتاجية

			5	313206	مراقب وحدة معالجة مياه صرف صناعى		
			6	313402	فنى تكرير نفط		
			7	343508	فنى ترميم آثار		

8. Total credit hours: (**136**)

Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Preparing qualified graduates with the knowledge and skills in Basic and Applied Chemical Sciences and having the capability to integrate into the labor market, continue postgraduate studies, and participate in scientific research and community service.

2. Program Goals:

The program goals (PG) set by the department, in support of the mission, require that the graduate of the chemistry program should:

PG1. Provide universities, higher institutes, and military academies with scientific excellence for continuing postgraduate studies.

PG2. Prepare human cadres and national competencies of specialists and researchers in Chemistry

PG3. Provide scientific and technical aids to develop the faculty member convoying to the achievement of international quality standards

PG4. Equip highly graduates qualified scientifically able to deal with the tools of modern technology with high efficiency in different areas of Chemistry

PG5. Communicate the benefit of chemistry to community service.

Obviously, a pre-requisite for achieving these outcomes is that, along with the department and faculty, the students should do the necessary hard work to follow the set procedures seriously and honestly.

3. Program Learning Outcomes*

Knowledge and Understanding	
K1	**Recall the fundamentals and application of all topics of chemistry and their relevance.**
K2	**List principals of different instruments and their functionality and applications.**
K3	**Identify and elucidate chemical compounds in terms of structures, reactivity, and applications.**

K4	**Recognize personal safety and environmental emergency responses and outline the routes of exposure to hazards to minimize and control them at the personal and societal levels.**
Skills	
S1	**Develop skills in problem-solving, critical thinking, and scientific, logical reasoning.**
S2	**Create awareness about chemistry's impact on society and the environment and develop research skills for a specific target.**
S3	**Reorganize well-developed skills for analysis and evaluation of complex scientific problems.**
S4	**Demonstrate advanced techniques and chemistry experiments for developing and solving solutions to complex problems related to a professional target and applying all fundamental principles for complex field tasks.**
Values, Autonomy, and Responsibility	
V1	**Show awareness to preserve intellectual and scientific integrity during assignments, projects, and reports based on moderation in his thoughts and behavior while preserving national and religious identity.**
V2	**Appraise teamwork, decision-making in unpredictable work, and management of resources and time.**

* Add a table for each track or exit Point (if any)

Program learning Outcomes of exit Point

Knowledge and Understanding	
K1	**Recall the fundamentals and application of all topics of chemistry and their relevance.**
K2	**List principals of different instruments and their functionality and applications.**
K3	**Recognize personal safety and environmental emergency responses and outline the routes of exposure to hazards to minimize and control them at the personal and societal levels.**
Skills	
S1	**Create awareness about chemistry's impact on society and the environment and develop research skills for a specific target.**
S2	**Utilize developed skills for laboratory safety and management.**
S3	**Demonstrate effective chemistry experiments with the guidance of the Chemistry laboratory responsible for recording results and reports.**
Values, Autonomy, and Responsibility	
V1	**Show awareness to preserve scientific integrity during his duties based on moderation in his thoughts and behavior while preserving national and religious identity.**
V2	**Appraise teamwork, decision-making in unpredictable work, and management of resources and time.**

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	2	4	2.94%
	Elective	11	22	16.176%
College Requirements	Required	5	16	11.76%
	Elective	0	0	0%
Program Requirements	Required	26	84	61.76%
	Elective	4	8	5.88%
Capstone Course/Project		1	4	2.94%
Field Training/ Internship		1	6	4.41%
Residency year		0	0	0
Others		0	0	0
Total		50	136	100

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

2. Program Courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	BIO 1101	General Biology 1	Required	None	4 (3,0,2)	College
	CHM 1101	General Chemistry (1)	Required	None	4 (2,2,2)	College
	MAT 1101	Calculus (1)	Required	None	4 (3,2,0)	College
	ENG 1140	English (1)	Required	None	2 (1,2,0)	College
	QUR 1001	Quran Kareem (University Requirement 1)	Required	None	2 (2,0,0)	Institution
	ARB 1001	Linguistic skills (University Requirement 2)	Required	None	2 (2,0,0)	Institution
Level 2	CHM 1152	Lab. Safety and Management	Required	CHM 1101	1 (0,0,3)	Program
	CHM 1121	Organic Chemistry (1)	Required	CHM 1101	3 (1,2,3)	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	CHM 1102	General Chemistry (2)	Required	CHM 1101	4 (2,2,2)	Program
	MAT 1103	Mathematics for Chemistry	Required	MAT 1101	4 (3,2,0)	Program
	PHY 1101	General Physics (1)	Required		4 (2,2,2)	College
	ENG 1195	English (2)	Required	ENG 1140	2 (1,2,0)	College
Level 3	CHM 1211	Inorganic Chemistry (1)	Required	CHM 1102	3 (1,2,3)	Program
	CHM 1221	Organic Chemistry (2)	Required	CHM 1121	4 (3,0,3)	Program
	CHM 1241	Physical Chemistry (1)	Required	CHM 1102	3 (1,2,3)	Program
	CHM 1235	Fundamentals of Analytical Chemistry	Required	CHM 1102	3 (1,2,3)	Program
	STA 1111	Intron. to Probability & Statistics	Required	MAT 1101	3 (2,2,0)	Program
		University Requirement 3	Required	None	2(2,0,0)	Institution
Level 4		Free course **(1)	Elective	None	2 (2)	Institution
	CHM 1271	Biochemistry	Required	CHM 1221	3 (2,0,3)	Program
	CHM 1243	Electrochemistry and Corrosion	Required	CHM 1241	3 (2,0,3)	Program
	CHM 1236	Volumetric and Gravimetric Analysis	Required	CHM 1235	4(3,0,3)	Program
	CHM 1242	Physical Chemistry (2)	Required	CHM 1241	4(3,0,3)	Program
		University Requirement 4	Elective	None	2 (2,0,0)	Institution

EXIT POINT (After the completion of at least 66 credit hours, where at least 39 credit hours should be from Chemistry courses (course code CHM) and, in addition, two mandatory courses of University, 1001 عرب – 1101 قرا

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 5	CHM 1311	Inorganic Chemistry (2)	Required	CHM 1211	4 (3,0,3)	Program
	CHM *	Elective course (1)	Elective	Upon specifying the course (*)	2 (2)	Program
	CHM 1353	Selected applications in Chemistry	Required	CHM 1101	1 (0,0,3)	Program
	CHM 1322	Organic compounds spectroscopy	Required	CHM 1221	2 (2,0,0)	Program
	CHM 1313	Organometallic Chemistry	Required	CHM 1211	3 (3,0,0)	Program
		Free course **(2)	Elective	None	2 (2)	Institution
		University Requirement 5	Elective	None	2 (2,0,0)	Institution
		University Requirement 6	Elective	None	2 (2,0,0)	Institution
Level 6	CHM 1321	Heterocyclic Chemistry	Required	CHM 1221	2(2,0,0)	Program
	CHM 1329	Synthesis of Organic Compounds	Required	CHM 1221	2 (0,0,4)	Program
	CHM *	Elective course (2)	Elective	Upon specifying the course (*)	2 (2)	Program
	CHM 1332	Instrumental Analysis	Required	CHM 1236	4 (3,0,3)	Program
	CHM 1342	Quantum Chemistry	Required	CHM 1242 MAT 1103	2 (2,0,0)	Program
	CHM 1446	Catalysis & Surface Chemistry	Required	CHM 1242	2 (2,0,0)	Program
		University Requirement 7	Elective	None	2 (2,0,0)	Institution
		University Requirement 8	Elective	None	2 (2,0,0)	Institution
Level 7	CHM*	Elective Course (3)	Elective	Upon specifying the course (*)	2 (2)	Program
	CHM 1411	Solid state Chemistry	Required	CHM 1311	3 (3,0,0)	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	CHM 1422	Organic Reactions Mechanism	Required	CHM 1321	2 (2,0,0)	Program
	CHM*	Elective Course (4)	Elective	Upon specifying the course (*)	2 (2)	Program
	CHM 1438	Chemical Separation Methods	Required	CHM 1236	3 (1, 2,3)	Program
		Free course **(3)	Elective	None	2 (2)	Institution
		University Requirement 9	Elective	None	2 (2,0,0)	Institution
		University Requirement 10	Elective	None	2 (2,0,0)	Institution
Level 8	CHM 1497	Training course	Required	Department approval ***	6	Program
	CHM 1499	Graduation Project	Required	Department approval ***	4 (2,0,6)	Program

*Upon specifying the course, see LIST OF ELECTIVE COURSES
** Total Credit Hours of Free Courses: 6 Hours, Mandatory to End the Program.
***Students must have completed a minimum number of 126 Hours of Credit.

LIST OF ELECTIVE COURSES

Level(L)/Elective Number (E)	Course Code	Course Title	Credit Hours	Prerequisites	Type of requirements (Institution, College or Department)
L 5, L 6/E 1,2	CHM 1323	Medicinal Chemistry	2 (2,0,0)	CHM 1221	Program
	CHM 1326	Food Chemistry	2 (2,0,0)	CHM 1221	Program
	CHM 1312	Industrial Inorganic Chemistry	2 (1,0,3)	CHM 1211	Program
	CHM 1344	Material Science	2 (1,0,3)	CHM 1242	Program
	CHM 1334	Environmental Chemistry	2 (1,0,3)	CHM 1236	Program
	BIO 1251	Ecology and Biodiversity	2 (2,0,0)	BIO 1101	Program
	BIO 1252	Principles of Environmental Impact Assessment	2 (2,0,0)	BIO 1101	Program
L 7/E 3,4	CHM 1449	Nanochemistry	2 (2,0,0)	CHM 1343	Program
	CHM 1415	Nuclear and Radiation chemistry	2 (2,0,0)	CHM 1313	Program
	CHM 1444	Chemistry of Colloids	2 (1,0,3)	CHM 1343	Program
	CHM 1445	Photochemistry	2 (2,0,0)	CHM 1343	Program
	CHM 1442	Renewable Energy	2 (2,0,0)	CHM 1343	Program
	CHM 1428	Polymers and Petrochemicals	2 (2,0,0)	CHM 1321	Program

	CHM 1424	Bioorganic Chemistry	2 (2,0,0)	CHM 1271	Program
	CHM 1421	Chemistry of Natural products	2 (2,0,0)	CHM 1321	Program

* Include additional levels (for three semesters option or if needed).
** Add a table for the courses of each track (if any)

** Elective courses require students to select four courses from a designated list, serving as a crucial component of the curriculum. This framework encourages informed choices, promoting well-rounded knowledge and skills while facilitating specialization. By providing a diverse array of courses across various disciplines and available inter-departmental programs, students can align their selections with their career goals. The program manager should regularly gather student input on elective offerings and preferences through surveys or focus groups. This approach ultimately prepares students for success in the workforce by equipping them with both breadth and depth of knowledge.

University Requirements courses from (1) to (10)

University Requirements courses (1)-(10) should be chosen from the following packages and the following appropriate rules indicated inside the table:

Packages	*Course Code*	*Course Name*	*Credit Hours*	*Rules*
Islamic knowledge and values	QUR 1001*	Quran	2	The student chooses two courses, one of which should be the Quran course.
	HAD 1001	Studies in the Sunnah	2	
	JRS 1001	Objectives of Shariah	2	
	IDE 1001	Creed	2	
	JR 1001	Jurisprudence of Worship and Family	2	
Historical, national, and social knowledge and values	HST 1001	Studies in the Prophet's biography	2	The student chooses two courses.
	HST 1002	National History	2	
	SOS 101	Voluntary Work Skills	2	
	CUL 1001 CIS 101	Jurisprudence of Rights and Duties	2	
	GEO 1011	Environment and Sustainable Growth	2	
Professional skills and labor market	RHB 1001	Work Value and Ethics	2	The student chooses two courses.
	BUS 1001	Innovation and Entrepreneurship	2	
	EDM 1001	Leadership Skills	2	

Packages	Course Code	Course Name	Credit Hours	Rules
	FIN 1001	Financial Planning Skills	2	
	ENG 1001	English Language Skills	2	
Communicative and personal skills	BC 1001	Communications Skills	2	The student chooses two courses.
	ARB 1001	Linguistic Skills*	2	
	ART 1001	Editing and Speech Skills	2	
	PSY 1001	Mental Health	2	
	BIO 1001	General Knowledge of Health Care	2	
Academic skills	TCM 1001	University Education Skills	2	The student chooses two courses.
	RHE 1001	Reading Skills	2	
	IT 1001	Technical Skills	2	
	EDP 1001	Thinking Skills	2	
	STA 1001	Basics of Statistics	2	

* Mandatory courses in the exit point

3. Course Specifications:

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

برنامج بكالوريوس الكيمياء تحول الي فصلين

https://imamuedusa-my.sharepoint.com/:f:/g/personal/mkomran_cloud_imamu_edu_sa/EhXUGHmqOOBBoIuKalv2kekBTLSCqceMEuekKC8t5s6Tsg?e=L28lBm

4. Program learning Outcomes Mapping Matrix:

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

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1	K2	K3	K4	S1	S2	S3	S4	V1	V2
BIO 1101					I		I		I	
CHM 1101	I	I	I	I	I	I	I	I	I	
MAT 1101					I		I		I	
ENG 1140					I		I		I	
PHY 1101					I		I	I	I	
CHM 1102	I	I		I	I	I	I	I	I	I
CHM 1121	I		I	I	I		I	I	I	I
MAT 1103					I		I	I	I	I
CHM 1152	I	I		I	I	I	I	I	I	I
ENG 1195	I		I	I	I		I	I	I	I
STA 1111	P	P		P	P	P	I	I	I	P
CHM 1211	I	I		I	I	I	I	I	I	I
CHM 1241	P	P		P	P	I	I	I	I	P
CHM 1235	P	P		P	P	P	I	I	I	P
CHM 1221	P	P	I	P	P	P	I	I	I	P
CHM 1271	I	I	I	I	I	I	I	I	I	I
CHM 1243	P	P	P		P	P	M		P	P
CHM 1236	P	P	P	P	P	P	I	I	I	P
CHM 1242	P	P	P	P	P	P	I	I	I	P
CHM 1311	M		M	M	P		P	P	P	I
Elective 1*	P	P	P		P	P	M		P	P
CHM 1351	P	P	P	P	P	P	I	I	I	P
CHM 1322	I	I	I		I	I	I	I	I	I
CHM 1313	M	P	P		P	M	P	M	P	
CHM 1321	M	M	M	P	I	P	P	P	P	
CHM 1329	M	M	M	P	I	P	P	P	P	M
Elective 2*	P	P	P		P	P	M		P	P
CHM 1342	M	P		M	M	M	M	M	P	M
CHM 1332	M	P	M	M	P	P	P	P	P	P
CHM 1346	M	P		M	P	M	P	M	P	M

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1	K2	K3	K4	S1	S2	S3	S4	V1	V2
CHM 1411	M	P		M	P	M	P	M	P	M
CHM 1422	M	M		M	M	M	M	M	M	M
Elective 3*	M	M		M	M	M	M	M	M	M
Elective 4*	M	M		M	M	M	M	M	M	M
CHM 1438	M	P		M	P	P	P	M	P	M
CHM 1497	M	M	M	M	M	M	M	M	M	M
CHM 1499	M	M	M	M	M	M	M	M	M	M
University Req. (10 COURSES)	I	I	I	I	I	I	I	I	I	I
Free Courses	I	I	I	I	I	I	I	I	I	I

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

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

Describe teaching and learning strategies and curricular and extra-curricular activities adopted to achieve the Program's learning outcomes in all areas.

Following the College Strategic Plan, graduates will be active learners and bilingual. Students with sufficient scientific and technological adaption in applied science, Mathematics, Statistics, Physics, Biology, and Chemistry background are provided with ethical values. However, to achieve the Strategic Plan Goals, the College developed the following initiatives:

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 and delivered Teaching and learning to achieve outstanding teaching and learning strategies.

Academic staff receives training, guidance, and support, enabling them to contribute to the provision of outstanding teaching and learning practices.

Students are encouraged and motivated to behave in a manner that facilitates their learning, development, and progression.

Various teaching and learning strategies, such as lectures, tutorials, and laboratory sessions, will be utilized alongside curricular and extra-curricular activities to achieve program learning outcomes. This approach aims to create an engaging learning environment that connects theoretical knowledge with real-world applications. By promoting collaboration, critical thinking, and ethical engagement, the program prepares graduates to address complex challenges and make meaningful contributions to their communities and industries. This comprehensive strategy ensures that students are equipped to meet the Program Learning Outcomes in knowledge, skills, values, autonomy, and responsibility.

5.1. Teaching and Learning Strategies.

5.1.1. Active Learning Techniques

- **Collaborative Group Projects:** Students work in diverse teams to discuss chemistry-sounding topics. Each project requires them to analyze a real-world issue (e.g., pollution, environmental protection, materials synthesis, and characterization) and develop their logical thinking. This promotes analytical and problem-solving skills (S2), enhancing teamwork and communication.

- **Peer Teaching Sessions:** Organize structured peer-led review sessions where students take turns explaining key concepts to their classmates. This method not only reinforces their understanding but also hones their ability to communicate chemistry ideas clearly and accurately (S4)

5.1.2. Project-Based Learning

- **Real-World Problem Solving:** Assign projects that require students to discuss and create a solutions using their chemistry background addressing current societal challenges, such as environments or predicting trends in social media. This approach integrates theoretical knowledge with practical application (S2).

- **Interdisciplinary Research Projects:** Encourage students to collaborate with peers from other disciplines (e.g., biology, physics) to explore how chemistry can be applied across various fields, illustrating its versatility (K2).

- 5.1.3 Technology Integration

  Software Training Workshops: Offer hands-on workshops on using Chemistry software tools, such as ACDlab, Chemoffice, Hyperchem, and MOE. Students learn to apply these tools for data analysis and simulations, thereby developing their proficiency in utilizing technology based on the study track (S4).

- **Online Collaboration Platforms:** Utilize platforms such as Google Workspace or Microsoft Teams to facilitate group work and discussions. Students can collaborate on projects, share resources, and provide peer feedback, enhancing their engagement and teamwork skills.

5.1.4. Inquiry-Based Learning

- **Research Assignments:** Assign students to conduct literature searches on specific chemistry topics, requiring them to appraise sources and synthesize findings into a cohesive report critically. This builds their research skills and ability to analyze diverse materials based on the study track (S3).

- **Problem Posing and Exploration**: Provide opportunities for students to formulate their chemistry questions based on real-world scenarios. This approach encourages independent thinking and critical analysis based on the study track (V2), allowing students to explore topics pique their interest.

5.2. Curricular Activities

5.2. 1. Workshops and Seminars

- **Guest Lectures and Industry Panels**: Invite professionals from various fields to share their experiences and discuss how they use chemistry and its relevant topics in their careers. This exposure helps students understand the relevance of their studies and the ethical considerations involved in applying chemistry and relevant topics based on the study track (K2, V1).

- **Skill Development Workshops**: Provide workshops on specific skills, such as spectroscopic data analysis, environmental analysis, and ethical decision-making. These sessions can include case studies that prompt students to consider the societal impact of their chemistry background work.

5.2. 2. Field Experience

- **Field Experience Opportunities**: Collaborate with industries , research institutions, and other organizations, such as SFDA and SASO , to provide Field training for students. Internships allow students

to apply chemistry knowledge and skills gained in practical settings, gain experience, and develop professional ethics (V1).

- **Field Trips**: Organize visits to companies or research centers where chemistry and relevant topics plays a crucial role, such as data analytics firms or engineering companies. These visits help students see the practical application of their studies and foster connections with potential employers.

5.2. 3. Assessment and Feedback

- **Formative Assessments**: Implement regular quizzes, homework, Exams, presentations, and project reviews to provide ongoing feedback to students. This helps them assess their understanding and encourages self-evaluation of their learning (V2).

- **Portfolio Development**: Students should be required to create a portfolio documenting their projects, research papers, and reflections on their learning journey. This portfolio not only showcases their skills but also encourages reflective practice.

5.3. Extra-Curricular Activities

5.3.1. Chemistry/Science Clubs

- **Study Groups and Tutoring Programs**: Establish student-led study groups and peer tutoring sessions. These initiatives create a supportive learning environment where students can collaborate on challenging topics and help each other succeed (V3).

- **Outreach Initiatives**: Organize community outreach programs, such as math tutoring for local high school students or workshops for underrepresented groups. These programs promote responsible citizenship and ethical engagement with the community (V1).

5.3.2. Conferences and Competitions or national specific exam

- **Participation in Chemistry Competitions**: Encourage students to enter national and international math competitions, fostering their analytical and creative problem-solving abilities (S1).

- **Academic Conferences**: Support students in attending and presenting at academic conferences, allowing them to share their research, network with professionals, and improve their communication skills (V3).

5.3.3. Leadership Development

- **Mentorship Programs**: Pair students with faculty or industry mentors who can provide guidance on academic and career choices. This helps students develop a sense of responsibility and ethical decision-making (V1).

Leadership Roles in Group Projects: Assign students' roles within their project teams that allow them to take on leadership responsibilities. This encourages adaptability and the development of leadership skills necessary for professional success (V3).

The learning experiences and learning activities:

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

- Teachers should be confident that their students understand and realize the learning objectives of their studies.
- Students should develop their progress in achieving their goals by sharing responsibility for their learning outcomes as the main target.
- Teachers should develop students' skills and confidence and encourage them to become successful independent learners and prepare for practical life.

- Teachers should achieve teaching and learning strategies by actively seeking new methods and approaches to motivate students to use and apply the technologies and other resources available to them to enhance the teaching and learning experience.
- Students and teachers should be supported with all the opportunities and resources to improve and develop their academic and teaching potential.
- Teachers are encouraged to collaborate to share best practices and support each other's development.

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

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

The department ensures teaching quality standards to achieve the aforementioned policies and initiatives through the following actions:

- At the beginning of each semester, the students are given the syllabi, which contain detailed information about the courses, the method of evaluation, grades, etc.
- The course distribution is done according to the specialties of faculty staff and their wishes.
- At the beginning of each semester, one coordinator is nominated for each course; the coordinator is asked to communicate and coordinate with the course teachers in both branches (male and female).

The duties of the course coordinator consist of:

- Time distribution according to the course contents.
- The preparation of the exercise lists, the midterms, and the final exam in consultation with course teachers in both branches.
- The course's good progress in all sections is followed through periodic meetings with course teachers and a midterm progress report.
- The evaluation of the teaching quality and benchmarking between parallel sections (groups) and the sections of the previous session of the same course.
- Collect the course report and prepare the final report provided by SWAT.
- Update the course folder.
- Annual report is prepared annually.
- Student surveys of all courses and program.
- Teaching staff evaluations of the program.
- Annual Faculty and Staff performance evaluation.

Supports for student independent work:

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

1. Free WI-FI supported by the Deanship of Informatics technology inside the campus supplied to the students to
   - Use these facilities to review independently a part of a course, to prepare homework or an exam, or to access the (local) digital library (open computer labs) ;
   - Access the Saudi Digital Library (SDL) for free textbooks and knowledge resources via open computer labs. They read independently these resources and write reports on them;
   - Course Materials provided via Blackboard classrooms: The teachers use Blackboard classrooms to give students all kinds of materials related to the courses: syllabi, slides, lists of exercises, solutions to exams and homework, etc.... These materials can be used independently by students for the best management of the course;
1. At least six office hours provided by each teacher:

Each teacher has to choose in their timetable at least six office hours to discuss all course issues with students;

2. Graduation project course: All programs have a research or graduation project. During this course, students have to work independently to write a report and give an oral presentation, followed by an oral discussion at the end of the course;
3. Mini-projects and homework in some courses: The main goal of these assessment methods is to strengthen students' independence.

Knowledge and understanding

Graduates of a Bachelor of Science in Chemistry degree will be able to demonstrate:

K1	Recall the fundamentals and application of all topics of chemistry and their relevance.
K2	List principals of different instruments and their functionality and applications.
K3	Identify and elucidate chemical compounds in terms of structures, reactivity, and applications.
K4	Recognize personal safety and environmental emergency responses and outline the routes of exposure to hazards to minimize and control them at the personal and societal levels.

to achieve the program learning outcomes,

- Lecturing
- Group discussion
- Laboratories experiments
- Homework and assignments
- Oral presentation / Mini-projects / Field Training/ Graduation Project

Skills

S1	Develop skills in problem-solving, critical thinking, and scientific, logical reasoning.
S2	Create awareness about chemistry's impact on society and the environment and develop research skills for a specific target.
S3	Reorganize well-developed skills for analysis and evaluation of complex scientific problems.
S4	Demonstrate advanced techniques and chemistry experiments for developing and solving solutions to complex problems related to a professional target and applying all fundamental principles for complex field tasks.

to achieve the program learning outcomes,

- Whiteboard solved exercises
- Brainstorming
- Mini and Graduation Project
- Seminars
- Group competitions
- Laboratories experiments
- Laboratory performance sessions
- Group discussion and seminars
- Demonstrations, virtual labs, and laboratory manuals demonstrations
- Encourage students to use network communication to submit homework and assignments

Values, Autonomy, and Responsibility

V1	**Show awareness to preserve intellectual and scientific integrity during assignments, projects, and reports based on moderation in his thoughts and behavior while preserving national and religious identity.**
V2	**Appraise teamwork, decision-making in unpredictable work, and management of resources and time.**

to achieve the program learning outcomes,

- **Encourage students to apply ethical principles and commit to professional ethics, responsibilities, and norms of**

communication practice in *Group discussion and teamwork*.

Assignments, homework, and mini-reports to autonomously assess one's learning and performance and engage in independent life-long learning.

6. Assessment Methods for program learning outcomes.

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

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

Direct Assessment Methods

6.1. Direct Assessment Methods

6.1.1. Exams and Quizzes

Midterm and Final Exams: Each semester will include a midterm and a final exam. These assessments will test students' understanding of fundamental chemistry principles (K1) and their ability to articulate mathematical concepts and apply them in various contexts (K2). The exams will consist of multiple-choice questions, problem-solving exercises, and theoretical questions, ensuring comprehensive material coverage.

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

6.1.2. Projects and Presentations

Research Papers: Assigned in the last semester of Year 4, students will draft a research paper that involves conducting literature searches, critically appraising sources, and synthesizing findings related to a specific chemistry topic or application. This assessment will gauge their research abilities (S3) and understanding of the background of chemistry and its application (K2).

6.1.3. Laboratory Assessments

Chemistry Labs: In Levels 1 to 7, students will participate in lab sessions focused on using chemical laboratory tools such as chemicals, glassware, and solvents. Assessments will include practical assignments where students demonstrate their ability to utilize these tools for carrying out experiments of identifications, measurements, and synthesis (S2, S3). Lab reports will be graded based on accuracy, creativity, and clarity of presentation.

6.1.4. Peer and Self-Assessment

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

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

6.2. Indirect Assessment Methods

6.2.1. Surveys and Questionnaires

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

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

6.2.2. Focus Groups

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

6.2.3. Course Evaluations

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

6.3. Assessment Plan Overview Cycle Structure

6.3.1. Assessment Frequency:

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

Year 1: Introductory courses like Chemistry, Calculus, Physics, and Biology will assess foundational knowledge (K1, K2) and analytical skills (S1). Direct assessments will include quizzes, exams, and a group project on mathematical concepts.

Year 2: Intermediate courses like Organic chemistry, Inorganic chemistry, Physical chemistry, and analytical chemistry will be evaluated (S2). Assessments will include projects and lab assignments.

Year 3: Advanced courses focusing on specific topics in chemistry (V1) through research papers and peer evaluations.

Year 4: The Capstone course CHM 1499 will assess literature search skills (S3) and integrate knowledge and skills from the entire program. Students will be required to complete a comprehensive project synthesizing their learning. This final assessment will evaluate communication (S4), leadership in team settings (V3), and self-evaluation (V2) through presentations and reports.

Field Experience Assessment

In the program's final year, students must complete a field experience or internship related to their study area. This practical component will allow students to apply their chemistry knowledge in real-world settings, reinforcing their understanding and enhancing their skill set.

6.3.2. Field Experience Evaluation:

Students will be assessed based on their performance in the field training (CHM 1497), including their ability to apply chemistry concepts to solve real-world problems. Evaluations will include supervisor assessments, focusing on the student's analytical skills, problem-solving abilities, and ethical conduct (V1). Students will submit a final report detailing their internship experiences, the projects they worked on, and the chemistry techniques they employed. This report will be graded on clarity, relevance, and integrating learned concepts.

6.3.2. Reflective Analysis:

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

D. Student Admission and Support:

1. Student Admission Requirements

Admissions occur only once during summer vacation through the Unified E-Admission Portal at public universities in the Riyadh region. There are no admissions for the second semester. The application for admission is through the Unified E-Admissions Portal for Students.
القبول في الجامعة (imamu.edu.sa) , نسخة من نسخة من التخصصات المتاحة للعام الجامعي 1446هـ (عرض تقديمي (imamu.edu.sa)
Students can apply for admission to IMSIU University through the Unified *E*-Admissions Portal for public universities in the Riyadh region. This portal enables the applicant to fill out the admission application electronically and choose an academic major according to his/her certifications, grades, and priorities without the need for his/her presence at the university.
The student will be accepted directly into the academic science program that he/she wishes to enroll in, according to his/her GPA. The admission of students at the university is part of the responsibility of the Deanship of Admission and Registration عمادة القبول والتسجيل (imamu.edu.sa)**.**

1. Applicant must hold a General Secondary Certificate or Secondary Certificate or equivalent from KSA or outside.
2. The applicant must be of good conduct and behavior.
3. Applicant must be medically fit.
4. If the applicant works for any government or private entity, he must obtain approval from his references to study.
6. To successfully pass any test or personal interview deemed by the University Council.
7. Admission is limited to high school graduates / natural sciences track.
8. The calculation of compound ratios is as follows:


وضوابط القبول الحصول على نسبة موزونة لا تقل عن ٨٠٪ يتم حسابها وفق النسب التالية:

الثانوية العامة	٣٠٪
اختبار القدرات العامة	٣٠٪
الاختبار التحصيلي	٤٠٪

10

2. Guidance and Orientation Programs for New Students

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

The Bachelor Program in Chemistry provides comprehensive orientation for new students. It holds an orientation week for new students at the beginning of every academic year (organized by the college). During the orientation week, students have the opportunity to:

- **Meet other new students, current student leaders, faculty, and staff.**
- **Learn their way around campus.**

- **Find out about all the student services and academic programs at the University of Imam Mohammad Ibn Saud Islamic University.**
- **Address their individual needs and get their questions answered.**

At the end of orientation week, the new students will be more familiar with academic life and the facilities provided.

During the orientation week, students are given manuals and brochures that help them understand and familiarize themselves with the university environment, programs, services, facilities, rights, and duties. In addition to the orientation week, an orientation meeting is held for new students at the beginning of each semester. In this meeting, new students are provided with the necessary information they need during their years of study. All the new students, including the college dean, vice dean for academic affairs, and department academic advisor, attended this meeting. During this meeting, the department chair, the department's coordinator of academic advising and the department's coordinator of academic affairs address the new students and give them all the necessary academic information they need. Moreover, they answer all the questions raised by the students during the meeting. In addition, the University Deanship of Student Affairs provides new students with the necessary guidance and orientation programs.

3. Student Counseling Services

(Academic, professional, psychological, and social)
(Include only the exceptional needs offered to the students of the Program that differ from those provided at the institutional level).

- **An academic advisor from the department staff provides student counseling and advice. Faculty members ensure that students understand the program's requirements.**
- **The academic advisor will be responsible for pastoral support, guidance, and counseling.**
- **The academic advisor assists students in developing educational plans that are consistent with their life goals.**
- **Every student will be required to meet the chemistry academic advisor at least twice per semester, during the registration period (first two weeks) and the beginning of each semester.**
- **The academic advisor provides students with accurate information about academic progression and degree requirements.**
- **The academic advisor assists students in understanding academic policies and procedures.**
- **The academic advisor assists students in overcoming educational, social, and personal difficulties.**
- **The lecturer for each course allocates six office hours per week, advertised on their timetable and reserved as part of their teaching schedule, to help the students.**
- **Students can get individual consultation and academic advice appointments with teaching staff via e-mail or phone.**
- **The department website lists teaching staff members with room numbers, phone numbers, and e-mail addresses.**
- **University support services include careers, financial advice, housing, counseling, etc.**
- **Excellent library and digital library facilities (SDL).**
- **University support services include careers, financial advice, housing, counseling, etc.**
- **University, college, and department handbooks provide information about course structure, university regulations, and other pertinent topics.**
- **Feedback is provided for all assessments.**

4. Special Support

(Low achievers, disabled, gifted, and talented students).

Bachelor Program in Chemistry (via the head of the department) and the University of Imam Mohammad Ibn Saud Islamic University provide care and support for low achievers and disabled students. Furthermore, the Vice-Deanship for Academic Affairs has established a *Center for Special Needs Services* (CSNS). Underachieving students are identified and provided with remedial programs to help them overcome the difficulties hindering their progress in the program. These students are distributed among the academic advisors in the department and are given due interest. They are met regularly by their academic advisors, who are asked by the academic advising coordinator (after coordinating with the CSNS) to make an appointment. During these meetings, the students are provided with advice and guidance to help the students make decisions related to registration decisions, deletion, addition, grievance, or even transfer to another program.

Furthermore, the program has monitored underachieving students to help and advise them that they can finish their graduation requirements and catch up with their colleagues with the established *Student Academic Support Center* (SASC). These students are also offered several programs, lectures, and workshops on selected topics in which they can develop and strengthen their knowledge and language skills. This process of following up with these underachieving students continues until their graduation.

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

For gifted and talented students, the university has established a department for creativity and talent to identify and develop their abilities, named the *Department of Gifted and Talented Care*. This is achieved through several extracurricular activities to attract and encourage talented students to develop their abilities and gifts.

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

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

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor		**Chemistry**		**3**	**2**	**5**
Associate Professor		**Chemistry**		**4**	**2**	**6**
Assistant Professor		**Chemistry**		**2**	**1**	**3**
Lecturer		**Chemistry**		**1**	**-**	**1**
Teaching Assistant		**Chemistry**		**3**	**1**	**4**
Technicians and Laboratory Assistants		**Chemistry**		**2**	**-**	**2**
Administrative and Supportive Staff		**Chemistry**		**2**	**-**	**2**
Others (specify)						

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

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

For the planning and acquisition of learning resources, the department proceeds with the following mechanism:

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

- **Course description (preliminary syllabus),**
- **Recommend Lists* of Required Textbooks, Essential reference materials (Journals, Reports, etc.), Electronic Materials (e.g., Websites, Blackboard, etc.), and other learning materials such as computer-based programs/CDs and software for Chemical Laboratories Courses.**

STEP 2: The Plans and Curricula Committee (PCC) collects learning resources for all courses and submits the required lists to the department head for approval by the department council.

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

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

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

For the planning and acquisition of resources for the library, laboratories, and classrooms, the department acts as follows:

STEP 1: **Evaluation of the locals assigned for undergraduate programs: the library (equipped with textbooks and references provided by the Central Library), accessible to SDL, Laboratories (equipped with appropriate instruments, chemicals, and glassware), and classrooms.**

STEP 2: **In the case of supply shortages, with the department council's approval, the Head of the Department asks the College Dean to provide the Required lists of Learning Resources through the university central library and from Central Chemical Stores for chemicals, laboratory requirements, and IT Deanship.**

Step 3: **Using Blackboard for distance learning and providing all kinds of materials related to the courses.**

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the Program)

The Bachelor Program in Chemistry has special arrangements in classrooms and the laboratories section, as follows:

A: *Classrooms Section (Lectures and Tutorials)*

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

1. **Adequate Ventilation: Ensure proper ventilation in the classroom to maintain good air quality. Regularly clean and maintain air conditioning systems and provide proper ventilation to minimize the accumulation of dust allergens. If possible, open windows to allow fresh air circulation.**
2. **Proper Lighting: Ensure the classroom is well-lit with appropriate lighting to create a comfortable learning environment. Use natural lighting whenever possible and provide adjustable artificial lighting to accommodate individual preferences.**
3. **Comfortable Seating: Provide comfortable and ergonomic seating arrangements that support good posture and minimize discomfort. Regularly inspect and maintain chairs to ensure they are in good condition.**
4. **Classroom Layout: Arrange desks and chairs for adequate student spacing. Consider maintaining physical distancing guidelines to minimize the risk of spreading illnesses.**
5. **Fire Safety Measures: Install smoke detectors, fire extinguishers, and fire alarms in the classroom. Mark emergency exits and ensure they are easily accessible and unobstructed. Conduct regular fire drills to familiarize students and staff with evacuation procedures.**

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

B. The laboratories section:

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

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

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

- Equip the lab with instruments that serve the practical sessions.

- ❖ **In each lab, there are containers for solid waste, liquid waste, and crushed glasses marked with special colors for each.**
- ❖ **Each lab has a small pharmacy for first aid in case of an accident in the entry of each lab, and inside the lab, a table contains the phone numbers for:**
  - **a) Medical Centre**
  - **b) Safety and Protection**
  - **c) Ambulance**
  - **d) Head of Department**
- ❖ **In each lab, the rules, conditions, safety mechanisms, and list of Risks and safety precautions according to the Merck Catalogue are hanging.**
- ❖ **A plan has been designed for students escaping from the labs. If any accident happened (fire, explosion, chemical bottle break, chemical hazard compound falls, etc….)**
- ❖ **An emergency tool inside each lab.**

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to the quality assurance manual.

Insert link : ***https://imamuedusa-my.sharepoint.com/personal/mkomran_cloud_imamu_edu_sa/_layouts/15/onedrive.aspx?ga=1&id=%2Fpersonal%2Fmkomran%5Fcloud%5Fimamu%5Fedu%5Fsa%2FDocuments%2F%D8%A7%D9%84%D8%AE%D8%B7%D8%B7%20%D8%A7%D9%84%D9%85%D8%B7%D9%88%D8%B1%D8%A9%20%D9%84%D8%A8%D8%B1%D8%A7%D9%85%D8%AC%20%D9%82%D8%B3%D9%85%20%D8%A7%D9%84%D9%83%D9%8A%D9%85%D9%8A%D8%A7%D8%A1%2F%D8%A8%D9%83%D8%A7%D9%84%D9%88%D8%B1%D9%8A%D9%88%D8%B3%20%D8%A7%D9%84%D8%B9%D9%84%D9%88%D9%85%20%D9%81%D9%8A%20%D8%A7%D9%84%D9%85%D8%AE%D8%AA%D8%A8%D8%B1%D8%A7%D8%AA%20%D8%A7%D9%84%D9%83%D9%8A%D9%85%D9%8A%D8%A7%D8%A6%D9%8A%D8%A9%2FQUALITY%20IMPROVEMENT%20PROCESS.***

Purpose

The purpose of the Central Unit for Development and Quality **(CUDQ) is to be responsible for the development and quality-related tasks at the college, according to NCAAA and University quality requirements within the College community.**

On behalf of the Vice-Deanship of the College of Science, the **Central Unit for Development and Quality (CUDQ) is accountable to the College Board for all aspects of academic quality assurance as follows:**

1- **Follow up on implementing the quality management system in the college.**
2- **Follow up on meeting program quality standards in the college.**
3- **Follow up on academic accreditation projects in the college.**
4- **Monitoring the quality of the educational process in college programs. Collecting bylaws, regulations, evidence, and documents related to all college work.**

To coordinate, maintain, and enhance the quality and academic standards within the college, CUDQ shall supervise all departmental accreditation committees and related working teams.

At the college, quality management, including quality assurance, is governed by **CUDQ, which is** based on quality-oriented governance with continuous development and improvement. Globally, **CUDQ** 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 conveying its strategic goals.

Each department establishes a quality unit. However, **CUDQ** unites all procedures, methods, and tools to ensure an integrated cyclical quality process across the College and its academic programs, including teaching-learning quality.

The college considers a degree program itself to be a qualification process. The precise definitions and descriptions of a program's level, goals, objectives, and learning outcomes are specified in each specification document, and they are based on NQF [1444-2023]. In addition, templates of NCAAA] are used. Programs, course specifications, and related reports are the central references to ensure ongoing monitoring and systematic improvement.

Program quality is monitored through several procedures:

1- Courses reports are submitted to the program manager every trimester
2- An appropriate teaching staff committee is in charge of assessment and modification
3- Prepare and monitor the annual program report.
4- Conduct and analyze surveys and opinions of the students about the courses and the program.
5- Conduct and analyze surveys and opinions of the employers about the program.
6- The program manager reviews the proposals submitted by the previous committees and makes appropriate decisions after the department council approves them.
7- Monitor a global review for the development of the program periodically every five years if necessary.
8- Annual KPIs reports.
9- Periodic evaluation by stakeholders: students, alumni, faculty members, and job market representatives.
10- Periodic operational plan progress reports.
11- Benchmarking.
12- Academic accreditation

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

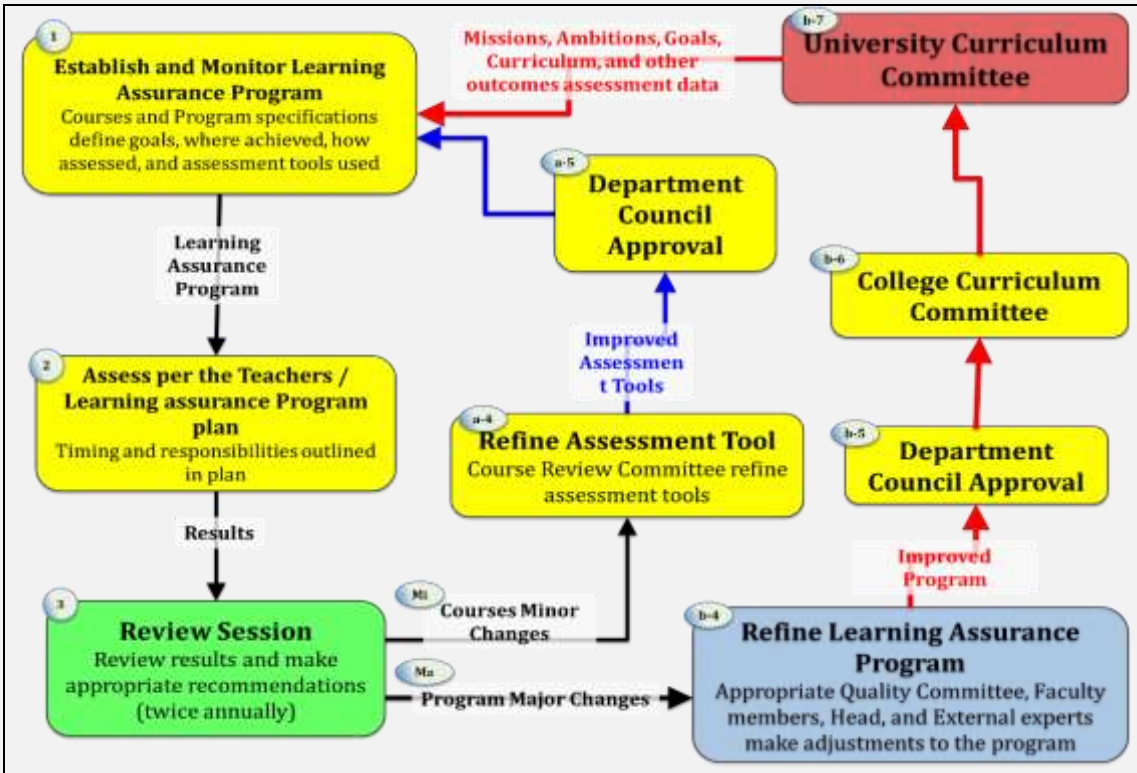

Figure 2 - Teaching\Learning Quality Assurance Process Diagram

These procedures provide multiple points of input that reliably paint a picture of the program's quality and guide improvement plans and initiatives. The reports and data generated from the abovementioned procedures are reviewed at multiple levels of the university administration to ensure accountability for implementing improvement plans. Courses reports are submitted to the program manager.

2. Procedures to Monitor Quality of Courses Taught by other Departments

The department ensures all the courses, except in case cooperation is initiated with another department or institute in the Graduation Project (CHM 1499).

The mechanism for monitoring the quality of the Graduation Project and Training field taught and carried out by other departments,

1. **Strategies for Obtaining Student Feedback on the Effectiveness of Teaching: Students are asked to submit the first report about the progress of the research project and Training field in the first six weeks and the second one in the 13th week.**
2. **The student will be invited to give a lecture on his progress in the research project in the 11st week.**
3. **The instructor (supervisor of the Graduation Project) will submit a final version to the Graduation Project Committee with evaluation reports and a list of 5 examiners (at least two outside his institution).**
4. **The Department will follow the proposed regulation of the Quality and Development Unit to recommend the submission of the research project to the judgment. (see attachment 1)**
5. **The Graduation Project Committee will propose a peer committee to the head of department for approval**
6. **The peer committee will review the research projects by applying all criteria in attachment 1 (Ethical standards, Language Conventions, Style, layout)**
7. **The accepted Research Project Report (RPR) will be forwarded for final evaluation.**

8. The written project RUBRIC and the oral presentation RUBRIC can be considered a tool and indicator for the Quality of the *Graduation Project* Course, in combination with students, feedback, and the *Graduation Project* Committee
9. Other Strategies for Evaluation of Teaching by the Program/Department Instructor*:* At the end of each semester, the course instructor should complete a report, including a summary of student questionnaire responses appraising progress and identifying changes that need to be made if necessary.
10. Processes for Improvement of Teaching*:* Student evaluations and the supervisor's course report will be used to decide on improving parameters. Benchmarking with similar programs in other universities inside and outside the Kingdom of Saudi Arabia.
11. Planning arrangements for periodically reviewing course effectiveness and planning for improvement*:* Twice annually following the Teaching and Learning Assessment Process adopted by the Department Council.

,3. Procedures Used to Ensure the Consistency between Main Campus and Branches (including male and female sections).

The Department of Chemistry adopted the following processes: Ensure consistency between the Main Campus and Branches (including male and female sections).

1. Centralized mechanism/policy for program and course development: Only the department council on the main campus is permitted to change the program specification, study plan, and course specifications.
2. Integration Committee represented by Course Responsible and Course Coordinator: The integration committee is pivotal in connecting the main campuses and branches to ensure changes to the program and courses are uniformly implemented across all sections and campuses.
3. The Integration Committee's main duties are to ensure that course delivery conforms to the requirements of the course specifications and the course common syllabus in both branches.
4. Course Coordination: The course coordinator ensures that course coverage, teaching and learning activities, and assessment methods are comparable across all campuses and sections.
5. The department nominated a coordinator for each course and each branch at the beginning of the semester.
6. For each course, there is a second examiner for the final exam who follows a form adopted by the department council
7. The final exam for each course is common for ALL SECTIONS, including female sections;
8. The teacher writes a course report and submits it to the Integration Committee for writing a global Course report, supported by recommendations about the strengths or weaknesses (based on student feedback, external assessor report, current and previous course reports, and any other feedback) in both branches.

9. Annual Program Reports and End-of-Semester Reports: These two reports monitor for any inconsistency between campuses and sections at the level of courses and the program as a whole. Students of all branches study the same program.
10. The program manager follows all the processes through the Integration Committee and is responsible for them jointly.

4. Assessment Plan for Program Learning Outcomes (PLOs),

Assessment Plans for Program Learning Outcomes (PLOs) are given below
First, the "Mastered" level of performance will be a node of assessment of opportunity. The Mechanism for demonstrating achievement of the learning outcomes is an ongoing process that consists of seven phases:

- ✓ Phase 1. Data-collection Methodology: Direct and Indirect (listed in Section C.6. above)
- ✓ Phase 2. Benefits and Drawbacks of Data-collection Methods
- ✓ Phase 3. Evaluate the Choice of Data-collection Method
- ✓ Phase 4. Collect data
- ✓ Phase 5. Interpret evidence
- ✓ Phase 6. Report the resulting information and document the analysis.
- ✓ Phase 7. Identify Areas for Improvement and Enhancement.

At each stage (cycle of assessment), we take the resulting information in the form of a report into account to document, analyze, and improve all program components based on the appropriate key performance indicators (KPIs). Below is a table summarizing the long-term plan for assessing each track and All PLOs.

PLOs	Stage 1 (one year) هـ 1447 - 1446 م 2025-2024	Stage 2 (one year) هـ 1446 - 1446 م 2025 -2024	Stage 3 (one year) هـ 1447 - 1446 م 2026-2025	Stage 4 (one year) هـ 1448 - 1447 م 2027-2026
K1	√	√		
K2			√	√
K3		√		
K4		√	√	√
S1	√	√		
S2			√	√
S3		√	√	√
S4				√
V1	√	√	√	√
V2		√	√	√

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Integration Committee	Integration Committee Report	beginning of the Second Semester

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
	Dean		
Effectiveness of Teaching & Assessment	Students Program leader Integration Committee Independent Reviewers	Surveys, Interviews, Visits, Independent Reviewers reports, Second Examiner Reports	End of the semester, During the semester
Learning resources	Students, Graduates Integration Committee Leadership	Surveys, Interviews Exams and Results.	End of the semester, During the semester

Evaluation Areas/Aspects: e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.
Evaluation Sources: students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, etc.
Evaluation Methods: e.g., Surveys, interviews, visits, etc.
Evaluation Time: e.g., beginning of semesters, end of the academic year, etc.

6. Program KPIs*

The period to achieve the target (**One Year**) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	**Students' Evaluation of Quality of Learning Experience in the Program** (Average of the overall rating of final year students of the quality of learning experience in the program, satisfaction with the various services offered by the program (restaurants, transport, sports facilities, academic, vocational, psychological guidance...), student satisfaction with the adequacy and diversity of learning sources (references, periodicals, information databases... etc.) on a five-point scale in an annual survey.)	4.0 of 5.0	Annual student survey (5-point scale)	End of the academic year
2	KPI-P-02	**Students' evaluation of the quality of the courses** (Average of students' overall rating for the quality of courses on a five-point scale in an annual survey.)	The average rating for (two semesters) of 4.0/5.0	Annual student survey (5-point scale)	End of each semester
3	KPI-P-03	**Completion rate** (The proportion of undergraduate students who completed the program in minimum time in each cohort)	85% completion in minimum time	Program records and tracking	Annually at graduation
4	KPI-P-04	**First-year students retention rate** (Percentage of first-year undergraduate students who continue at the program the next year to the total number of first-year students in the same year)	75% retention rate	Comparison of first-year enrollment to second-year enrollment	Annually, after first-year completion
5	KPI-P-05	**Students performance in the professional and/or National examinations** (Percentage of students or Graduates who were successful in the professional and/or national examinations, or their score average and median (if any)	80% pass rate	Analysis of examination results	Annually, after examination results are published

6	KPI-P-06	Graduates' employability and enrolment in postgraduate programs (Percentage of graduates from the program that within a year of Graduation were: a. employed within 12 months, b. enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year.)	70% employed or enrolled	Graduate follow-up survey and employment records	6 months post-graduation
7	KPI-P-07	Employers' evaluation of the program graduates proficiency (Average of the overall rating of employers for the proficiency of the program graduates on a five point scale in an annual survey.)	Average rating of 4.0/5.0	Annual employer survey (5-point scale)	Annually after graduation
8	KPI-P-8	The ratio of students to teaching staff (Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program)	15:1 student-to-staff ratio	Program records	Annually
9	KPI-P-9	Percentage of publications of faculty members (Percentage of full-time faculty members who published at least one research paper during the year to total faculty members in the program.)	60% of faculty publishing	Faculty publication records	Annually
10	KPI-P-10	Rate of published research per faculty member (The average number of refereed and/or published research per each faculty member during the year (total number of refereed and/or published research on the total number of full-time or equivalent faculty members during the year).	1.5 publications per faculty member	Faculty publication records	Annually

11	KPI-P-11	Citations rate in refereed journals per faculty member (The average number of citations in refereed journals from published research per faculty member in the program (total number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published)	Average of 10 citations per faculty member	Citation analysis of published works	Annually
12	KPI-P-12	Graduate Satisfaction with Career Preparation (The average rating)	4.0 of 5	Annual graduate survey (5-point scale)	6 months post-graduation
13	KPI-P-13	Assessment of Students' Research Skills (The average rating)	4.0 of 5	Exit-survey	End of academic program

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	COUNCIL OF DEPARTMENT OF CHEMISTRY
Reference No.	7 (NO. 2/3)
Date	29/3/1446 - 2/10/2024