Program Specification

(Bachelor)

Program:	**Chemistry**
Program Code (as per Saudi university ranking):	Chemistry 0105310101
Qualification Level:	**Bachelor of Science in Chemistry**
Department:	**Chemistry**
College:	**College of Sciences**
Institution:	**Almajmaah University**
Program Specification:	New ☒ updated* ☐
Last Review Date:	First version

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information

1. Program's Main Location :

Chemistry Program –College of Sciences - Al-Zulfi main campus.

2. Branches Offering the Program (if any):

NA

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

NA

4. Professions/jobs for which students are qualified

- Specifications, Metrology and Calibration Researchers Jobs
- Laboratory researchers and technicians' jobs
- Laboratory Analyst Jobs
- Environmental Monitor Jobs
- Environmental Protection Specialist Jobs
- Specifications, metrology and calibration technician jobs
- weapons and ammunition technician jobs
- Food Manufacturing Companies Jobs
- Manufacturing and Processing Firms Jobs
- Petroleum and petrochemical companies Jobs
- Pharmaceutical Companies Jobs
- Chemical technician in both educational and industrial organizations
- Chemist in toxicology, quality management and health laboratories
- Chemistry teacher
- Water quality chemist
- Analytical chemist
- Synthetic chemist
- Quality control chemist
- Hazardous waste chemist
- Chemist in petrochemical
- Materials scientist
- Chemical engineer

5. Relevant occupational/ Professional sectors:

- Research centers and universities
- Petrochemical companies
- Drinking water companies
- Pharmaceutical factories
- Plastic factories
- Soap factories and detergents

- Textile factories
- Food companies
- Minerals companies

6. Major Tracks/Pathways (if any):		
Major track/pathway	**Credit hours** (For each track)	**Professions/jobs** (For each track)
NA		

7. Exit Points/Awarded Degree (if any):	
exit points/awarded degree	**Credit hours**
NA	

8. Total credit hours: (138)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Providing high-quality and experienced alumni with international standards allows them to compete nationally and internationally, enabling graduates to support sustainable economic and industrial development research. Through our dual-track program in chemistry and industrial chemistry

2. Program Goals:

- Deliver a comprehensive, high-quality curriculum that meets international standards in both chemistry and industrial chemistry.
- Equip students with advanced theoretical knowledge and practical skills in chemical processes, analysis, and industrial applications.
- Foster critical thinking, problem-solving, and innovation skills to address complex chemical and industrial challenges.
- Develop students' proficiency in using state-of-the-art chemical instrumentation and industrial technologies.
- Cultivate entrepreneurial skills and knowledge of chemical product development and commercialization.
- Instill a strong foundation in chemical safety, quality control, and environmental sustainability practices.

3. Program Learning Outcomes*

Knowledge and Understanding	
K1	Define the concepts and principles of chemistry and related sciences, along with the ability to evaluate and interpret chemistry principals
K2	Recognize laboratory skills, quality control standards, and the concepts of experimental chemistry.
Skills	
S1	Perform the Laboratory experiments using the right scientific methods and proper safety procedures
S2	Communicate effectively orally and written using appropriate presentation methods for different chemical issues with recipients of different types
S3	Demonstrate the ability to use modern technology and statistical applications that are used in the various fields of chemistry
S4	Solve chemical problems related to different applications of chemistry through critical thinking to develop appropriate rational, explanations, and answers
Values, Autonomy, and Responsibility	
V1	Apply standards of integrity, transparency and ethical behavior in various academic and professional fields
V2	Demonstrate the ability of working independently and with groups.
V3	Self-development, assess own learning and performance, and autonomously make decisions regarding self-development and/or tasks based on convincing evidence.

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

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	2	4	3%
	Elective	4	8	6%
College Requirements	Required	0	0	0%
	Elective	5	15	11%
Program Requirements	Required	37	97	70%
	Elective	3	7	5%
Capstone Course/Project	Required	1	4	3%
Field Training/ Internship	Required	1	3	2%
Residency year	NA	0	0	0%

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Others	Required	0	0	0%
Total		53	139	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	ENGL 0110	مهارات لغة انجليزية English language skills	Required		3	Program
	CHM 0101	كيمياء عامة 1 General Chemistry 1 متطلب كلية	Required		3	College
	CHM0100	تطبيقات الحاسب في الكيمياء Computer application in chemistry	Required		2	Program
	CHM 0102	سلامة وإدارة المختبرات Laboratory Safety and Management	Required		2	Program
	MATH 0111	أسس الرياضيات Mathematical basis متطلب كلية	Required		3	College
		University Elective	Elective		2	University
		University elective	Elective		2	University
Level 2	ENGL 0120	لغة انجليزية علمية Scientific English	Required	-	2	Program
	CHM 0103	كيمياء عامة 2 General Chemistry 2	Required	CHM 0101	3	Program
	PHYS 0101	فيزياء عامة 1 General Physics 1 متطلب كلية	Required	-	3	College
	CHM 0120	كيمياء تحليلية 1	Required	CHM 0101	3	Program

		Analytical Chemistry 1				
	CHM 0130	كيمياء عضوية 1 Organic Chemistry 1	Required		4	Program
	CHM 0140	اطوار المادة والمحاليل Phase of matter and solution	Required	CHM 0101	2	Program
Level 3	CHM 0221	كيمياء تحليلية 2 Analytical chemistry 2	Required	CHM 0120	3	Program
	CHM 0231	كيمياء عضوية 2 Organic Chemistry 2	Required	CHM 0130	4	Program
	CHM 0250	كيمياء مجموعات رئيسية Main Group Chemistry	Required	CHM 0101	2	Program
	CHM 0210	كيمياء البوليمرات والبتروكيماويات Polymers & petrochemicals chemistry	Required	CHM 0130	2	Program
	BIO 0101	احياء عامة General Biology متطلب كلية	Required	-	3	College
		متطلب جامعة University Elective	Elective	-	2	University
		University Elective		-	2	University
Level 4	CHM 0232	كيمياء عضوية غير متجانسة Heterocyclic organic chemistry	Required	CHM 0231	3	Program
	CHM 0241	كيمياء ديناميكا حرارية Thermodynamic Chemistry	Required	MATH0 111	3	Program
	CHM 0251	عناصر انتقالية Transition metal	Required	CHM 0250	2	Program
	ICHM 0211	كيمياء صناعية 1 Industrial Chemistry 1	Required	CHM 0101	3	Program
	CHM 0242	كيمياء كهربية Electrochemistry	Required	PHYS 0101	3	Program
	MATH 0211	حساب التفاضل والتكامل Calculus	Required	MATH 0111	2	Program

		University Elective	Elective		2	University
Level 5	CHM 0343	كيمياء السطوح والغرويات والحفز Surface, Colloids and Catalysis Chemistry	Required	CHM 0240	3	Program
	CHM 0352	الكيمياء التناسقية Coordination Chemistry	Required	CHM 0251	3	Program
	CHM 0344	كيمياء الكم Quantum Chemistry	Required	MTH 0201	3	Program
	CHM 0333	الكيمياء الفراغية Stereochemistry	Required	CHM 0231	2	Program
	CHM 0322	التحليل الكيميائي الالى Instrumental chemical analysis	Required	CHM 0221	3	Program
	CHM 0360	الكيمياء الحيوية Biochemistry	Elective 1	CHM 0231	4	Program
Level 6	CHM 0345	كيمياء كهربية متقدمة Advanced electrochemistry	Required	CHM 0242	3	Program
	CHM 0353	الكيمياء العضومعدنية Organometallics Chemistry	Required	CHM 0352	2	Program
	CHM 0334	الية التفاعلات العضوية Mechanism of Organic Reactions	Required	CHM 0231	2	Program
	CHM 0346	الكيمياء الحركية Kinetic Chemistry	Required	CHM 0241	3	University
	CHM 0323	طرق الفصل الكروماتجرافي Methods of chromatographic separation	Required	CHM 0343	3	Program
	CHM 0335	التعاعلات والتحضيرات الكيميائية Organic Reactions and Preparations	Required	CHM 0232	2	Program
	CHM 0301	تطبيقات الذكاء الاصطناعي في الكيمياء Artificial Intelligence applications in chemistry	Required	CHM 0100	3	Program
Level 7	CHM 0436	كيمياء المنتجات الطبيعية Chemistry of natural product	Required	CHM 0232	3	Program
	CHM 0437	اطياف المركبات العضوية Spectroscopy of organic	Required	CHM 0322	3	Program

		compounds				
	CHM 0455	كيمياء الحالة الصلبة Solid State Chemistry	Required	CHM 0353	3	Program
	CHM 0447	الكيمياء النووية و الاشعاعية Nuclear And radiochemistry	Required	CHM 0352	2	Program
	CHM 0456	اطياف المركبات الغير عضوية Spectroscopy of inorganic compounds	Required	CHM 0353	3	University
	CHM 0470	مشروع تخرج Project	Required		4	Program
Level 8	CHM 0448	كيمياء النانو Nano chemistry	Required	CHM 0455	2	Program
	CHM 0404	الكيمياء الخضراء Green Chemistry	Required		2	Program
	CHM 0202	حساب التفاضل والتكامل Calculus	Required		2	Program
		متطلب قسم اختياري Department Elective	Elective		3	Program -
	CHM 0471	تدريب ميداني Training	Required		3	Program

Level 1 Course Title	Course Code	Distribution of Credit Hours				Number &Codeof Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	CrH		
مهارات لغة انجليزية English language skills	ENGL 0110	3			3		
كيمياء عامة 1 General Chemistry 1 متطلب كلية	CHM 0101	3			3		
تطبيقات الحاسب في الكيمياء Computer And AI application in chemistry	CHM 0100	2			2		
سلامة وإدارة المختبرات Laboratory safety and Management	CHM 0102	1		2	2		
أسس الرياضيات Mathematical basis متطلب كلية	MATH 0111	3	1		3		
University Elective		2			2		
University Elective		2			2		
Total		16	1	2	17		

Level 2	Course Code	Distribution of Credit Hours	Number	Prerequisite

Course Title		T	P	Lab	CrH	&Code of Pre-requisite	(Co-Requisite)
لغة انجليزية علمية Scientific English	ENGL 0120	2			2	-	
كيمياء عامة 2 General Chemistry 2	CHM 0103	2		2	3	CHM 0101	
فيزياء عامة 1 General Physics 1 متطلب كلية	PHYS 0101	2		2	3	-	
كيمياء تحليلية 1 Analytical Chemistry 1	CHM 0120	2		2	3	CHM 0101	
كيمياء عضوية 1 Organic Chemistry 1	CHM 0130	3		2	4		
اطوار المادة والمحاليل Phase of matter and solution	CHM 0140	1		2	2	CHM 0101	
Total		**12**		**10**	**17**		

Level 3 Course Title	Course Code	Distribution of Credit Hours				Number &Code of Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	Cr H		
كيمياء تحليلية 2 Analytical chemistry 2	CHM 0221	2		2	3	CHM 0120	
كيمياء عضوية 2 Organic Chemistry 2	CHM 0231	3		2	4	CHM 0130	
كيمياء مجموعات رئيسية Main Group Chemistry	CHM 0250	2			2	CHM 0101	
كيمياء البوليمرات والبتروكيماويات Polymers & petrochemicals chemistry	CHM 0210	2			2	CHM 0130	
احياء عامة General Biology متطلب كلية	BIO 0101	3			3	-	
University Elective		2			2	-	
University Elective		2			2	-	
Total		**16**		**4**	**18**		

Level 4 Course Title	Course Code	Distribution of Credit Hours				Number &Code of Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	CrH		
كيمياء عضوية غير متجانسة Heterocyclic organic chemistry	CHM 0232	2		2	3	CHM 0231	
كيمياء ديناميكا حرارية Thermodynamic Chemistry	CHM 0241	2		2	3	MATH 0111	
عناصر انتقالية	CHM 0251	2			2	CHM 0250	

Chemistry of Transition metal							
كيمياء صناعية 1 Industrial Chemistry 1	ICHM 0211	3			3	CHM 0101	
كيمياء كهربية Electrochemistry	CHM 0242	2		2	3	PHYS 0101	
حساب التفاضل والتكامل Calculus	MATH 0211	2	1		2	MATH 0111	
University Elective		2			2		
Total		15		6	**18**		

Level 5 Course Title	Course Code	Distribution of Credit Hours				Number &Code of Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	CrH		
كيمياء السطوح والغرويات والحفز Surface, Colloids, and Catalysis Chemistry	CHM 0343	2		2	3	CHM 0240	
الكيمياء التناسقية Coordination Chemistry	CHM 0352	2		2	3	CHM 0251	
كيمياء الكم Quantum Chemistry	CHM 0344	3			3	MATH 0111	
الكيمياء الفراغية Stereochemistry	CHM 0333	2			2	CHM 0231	
التحليل الكيميائي الالى Instrumental chemical analysis	CHM 0322	2		2	3	CHM 0221	
الكيمياء الحيوية Biochemistry	CHM 0360	3		2	4	CHM 0231	
Total		**14**		**8**	**18**		

Level 6 Course Title	Course Code	Distribution of Credit Hours				Number &Code of Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	CrH		
كيمياء كهربية متقدمة Advanced electrochemistry	CHM 0345	2		2	3	CHM 0242	
الكيمياء العضومعدنية Organometallics Chemistry	CHM 0353	2			2	CHM 0352	
الية التفاعلات العضوية Mechanism of Organic Reactions	CHM 0334	2			2	CHM 0231	
الكيمياء الحركية Kinetic Chemistry	CHM 0346	2		2	3	CHM 0241	
طرق الفصل الكروماتجرافي Methods of chromatographic separation	CHM 0323	2		2	3	CHM 0343	
التفاعلات والتحضيرات الكيميائية	CHM 0335	1		2	2	CHM 0232	

Organic Reactions and Preparations							
تطبيقات الذكاء الاصطناعي في الكيمياء Artificial Intelligence applications in chemistry	CHM 0301	3			3	CHM 0100	
Total		**14**		**8**	**18**		

Level 7 Course Title	Course Code	Distribution of Credit Hours				Number &Code of Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	CrH		
كيمياء النواتج الطبيعية Chemistry of natural product	CHM 0436	2		2	3	CHM 0232	
اطياف المركبات العضوية Spectroscopy of organic compounds	CHM 0437	3			3	CHM 0322	
كيمياء الحالة الصلبة Solid State Chemistry	CHM 0455	3			3	CHM 0353	
الكيمياء النووية و الاشعاعية Nuclear And radiochemistry	CHM 0447	2			2	CHM 0352	
اطياف المركبات الغير عضوية Spectroscopy of inorganic compounds	CHM 0456	3			3	CHM 0353	
مشروع تخرج Project	CHM 0470	2		4	4		
Total		**15**		**6**	**18**		

Level 8 Course Title	Course Code	Distribution of Credit Hours				Number &Code of Pre-requisite	Prerequisite (Co-Requisite)
		T	P	Lab	CrH		
كيمياء النانو Nano chemistry	CHM 0448	2			2	CHM 0455	
الكيمياء الخضراء Green Chemistry	CHM 0404	2			2		
متطلب قسم اختياري Department Elective		2			2		
متطلب قسم اختياري Department Elective		3			3		
University elective		2			2		
تدريب ميداني Training	CHM 0471	3			3		
Total		**14**			**14**		

Elective for General Chemistry

Department Elective 2 for Chemistry 1 Course (2 credits) Level 8	**Course Code**	**Distribution of Credit Hours**				**Number &Codeof Pre-requisite**	**Prerequisite (Co-Requisite)**
Course Title		**T**	**P**	**Lab**	**CrH**		
معالجة المياه Water Treatment	CHM 0405	2			2	CHM 0353	
كيمياء البيئة Environmental Chemistry	CHM 0406	2			2	CHM 0101	
جودة القياسات في المعامل الكيميائية Quality Measurements in Chemical Laboratories	CHM 0325	2			2	CHM 0221	

Department Elective 3 for Chemistry 1 Course (3 credits) Level 8	**Course Code**	**Distribution of Credit Hours**				**Number &Codeof Pre-requisite**	**Prerequisite (Co-Requisite)**
Course Title		**T**	**P**	**Lab**	**CrH**		
الكيمياء الطبية Medicinal Chemistry	CHM 0439	3			3	CHM 0231	
كيمياء التأكل Corrosion Chemistry	CHM 0449	3			3	CHM 0343	
كيمياء حيوية غير عضوية Inorganic Biochemistry	CHM 0457	3			3	CHM 0352	
الكيمياء الضوئية Photochemistry	CHM 0407	3			3	CHM 0243	
مكانيكية التفاعلات الغير عضوية Mechanism of Inorganic Reactions	CHM 0354	3			3	CHM 0353	
كيمياء مختبرات متقدمة Advanced Chemistry laboratories	CHM 0104	3			3	CHM 0103	

University elective courses 1

Group 1: student choose 2 courses, 4 credit hours			
Course code	Course number	Course title	Credit hours

SALM	101	Introduction to Islamic Culture (المدخل الى الثقافة الإسلامية)	2
SALM	102	Islam and Society Building (الإسلام وبناء المجتمع)	2
SALM	103	Economic System in Islam (النظام الاقتصادي في الإسلام)	2

University elective courses 2

Group 2: Students choose 4 courses,8 credit hours			
Course code	Course number	Course title	Credit hours
ARAB	101	المهارات اللغوية	2
ARAB	103	التحرير العربي	2
SOCI	101	Societal Issues (قضايا مجتمعية معاصرة)	2
VOW	101	Volunteering Systems (ألعمل التطوعي)	2
ENT	101	Business Entrepreneurship (ريادة الأعمال)	2
HAF	101	Principles of Health and Fitness (أساسيات الصحة واللياقة)	2
LHR	101	Human Rights Systems (الأنظمة و حقوق الإنسان)	2
ULS	100	University Life Skills مهارات الحياة الجامعية	2
SOS	100	Social Skills المهارات المجتمعية	2
NIHD	100	الهوية الوطنية والعمق التاريخي National Identity in its Historical Depth	2
University requirements: Students take 2 courses,4 credit hours			
PLS	100	Practical Life's Skills	2

		مهارات الحياة العملية	
INF	101	Computer Skills and Information Technology (مهارات الحاسب وتقنية المعلومات)	2

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

3. Course Specifications:

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

توصيفات المقررات 2024 خطة الكيمياء مسارات

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).*

Course code & No.	Program Learning Outcomes Chemistry track									
	Knowledge and understanding			Skills				Values		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
ENGL 0101	I				I	I			I	
CHM 0101	I	I		I					I	
CHM 0100	I			I		I				I
CHM 0102	I	I		I	I					I
MTH 0111	I					I	I			I
ENGL 0102	I				I	I			I	
CHM 0103	I	I		I		I				I
PHYS0101	I	I		I			I			I
CHM 0120	I		I	I		I				I
CHM 130	I		I	I		I			I	
CHM 0221	P		P	P		P		P		
CHM 0231	P		P	P	P			P		
CHM 0250	I				I	I		I		

Course code & No.	Program Learning Outcomes Chemistry track									
	Knowledge and understanding			Skills				Values		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
CHM 0240	**I**	**I**		**I**	**I**				**I**	
CHM 0210	**I**	**I**			**I**	**I**			**I**	
BIO 0101	**I**	**I**		**I**	**I**				**I**	
CHM 0232	**P**	**P**		**P**		**P**		**P**		
CHM 0241	**P**		**P**	**P**			**P**			**P**
CHM 0251	**P**				**P**	**P**		**P**		
ICHM 0211	**P**		**P**			**P**	**P**		**P**	
CHM 0242	**P**		P	P		P		P		
CHM 0343	P	P		P	P					P
CHM 0352	P	P		P	P				P	
CHM 0344	**P**				**P**	**P**		**P**		
CHM 0333	**P**				**P**	**P**				**P**
CHM 0322	**P**	**P**		**P**		**P**		**P**		
CHM 0360	**I**	**I**		**I**	**I**					**I**
CHM 0345	M	M		M		M				M
CHM 0353	M				M	M				M
CHM 0334	M		M		M		M			M
CHM 0346	M	M		M		M				M
CHM 0323	M	M		M			M	M		
CHM 0335	M		M	M			M		M	
CHM 0436	M		M	M			M			M
CHM 0437	M				M	M	M			M
CHM 0455	M				M		M			M
CHM 0447	M		M		M		M			M
CHM 0456	M				M	M	M			M

Course code & No.	Program Learning Outcomes Chemistry track									
	Knowledge and understanding			Skills				Values		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
CHM 0470	M	M	M	M	M	M	M	M	M	M
CHM 0448	M		M			M	M		M	
CHM 0404	M		M		M		M	M		
CHM 0471	M	M	M	M	M	M	M	M	M	M
CHM 0380	M				M	M			M	M
CHM 0354	M		M		M		M			M
CHM 0325	M				M	M	M	M		
CHM 0439	M		M			M	M	M		
CHM 0449	M		M			M	M			M
CHM 0457	M		M			M	M	M		
CHM 0405	M		M		M		M	M		
CHM 0406	M		M			M	M	M		
CHM 0407	M		M		M	M		M		
CHM 0481	M				M	M		M		M

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

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

Describe teaching and learning strategies, including curricular and extra-curricular activities, to achieve the program learning outcomes in all areas.

NO	Learning Outcomes	Teaching strategies	Assessment methods
K1	Define the concepts and principles of chemistry and related sciences, along with the ability to evaluate and interpret chemistry principals	-Lectures. - Conduct scientific research.	-Final exam - Midterm exam

K2	Recognize laboratory skills, quality control standards, and the concepts of experimental chemistry.	- Seminars. -Discussions -Brainstorming	- Short tests -Quizzes. - Homework - Class exercises - Evaluation of research
K3	Explain Chemical Reactions and Stoichiometry concepts to problems involving mass, moles, and solution molarity		
S.0	**Skills**		
S1	Perform the Laboratory experiments using the right scientific methods and proper safety procedures	Lectures Laboratories Active learning - E-learning -Self-learning -Cooperative Education -Examinations	- Final exam - Midterm exam - Short tests -Quizzes. - Homework - Class exercises - Evaluation of research -Practical tests
S.2	Communicate effectively orally and written using appropriate presentation methods for different chemical issues with recipients of different types		
S.3	Demonstrate the ability to use modern technology and statistical applications that are used in the various fields of chemistry		
S.4	Solve chemical problems related to different applications of chemistry through critical thinking to develop appropriate rational, explanations, and answers		
V.0	**Values**		
V.1	Apply standards of integrity, transparency and ethical behavior in various academic and professional fields	-Simulation programs - Cooperative work - Working in groups	-Practical tests - Practical reports - Note card - Research papers
V.2	Demonstrate the ability of working independently and with groups.		
V.3	Self-development, assess own learning and performance, and autonomously make decisions regarding self-development and/or tasks based on convincing evidence.		

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).

1- Direct assessment method

All the courses link with program outcomes and the questions match with KPI so, we can directly measure outcomes.

2- In Direct assessment method

Application of program evaluation questionnaires for graduates, students, Employer and stockholders

D. Student Admission and Support:

1. Student Admission Requirements

1- He holds a high school diploma or its equivalent from inside the kingdom or outside.

2- He should have received his high school diploma or its equivalent for five years or less.

3-He must be of good conduct.

4-He must get a study approval in case he works for a governmental or private hand.

5- He must be medically fit.

6- He should meet any other conditions specified by the University Council.

7-He must succeed any test/ interview appointed by the university.

8- He should not be expelled from another university for disciplinary or educational reasons.

9- It is not permitted to accept students obtaining a bachelor's degree.

10- It is not permitted to accept students enrolled in another university degree to get another bachelor's degree from the same university or another

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).

Department manages a orientation week in the beginning of each semester to guide and orient the student, and the study plan was available for all student. Also university and department rules are available in department website.

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).

The department at the beginning of the semester forms the academic guidance committee.

-Introductory meetings are held for new students in the first and second semesters, where identification guides are distributed to the academic system, activities and students' rights. Students are also, introduced to the study system and regulations of the college.

-At the beginning of the semester, the list of students' names is updated at each of the academic advisors in the department.

-Guidance sessions for many students with their academic mentors during the period of deletion and addition to help students choose the appropriate courses for them from the study plan.

-Helping students to achieve maximum psychological, social and academic compatibility.

- Providing educational and psychological care and academic excellence for students who fail to enable them to overcome the problems that led to academic stumbling.

-Follow up the academic achievement of students who fail to upgrade the academic level.

-Providing outstanding educational care for outstanding and talented students in order to maintain excellence and talent and to direct abilities and talents so that they can be utilized to the maximum extent possible.

-Direct communication between the faculty and students in order to identify the most important problems experienced by students. It is also, achieved through the academic system.

-A program to connect with the community and develop the spirit of community and enrich programs for community service through students.

-Limiting the problems of students through the reports submitted by faculty members of the department and work to solve them.

-Academic guidance hours are announced in the members' tables as well as on their personal sites and in the bulletin board of the department.

-Students are surveyed through the evaluation of the academic guidance in the activities and programs of guidance,

-A quarterly and annual report on the process of academic guidance in the department.

Improvement plans developed to improve the process of academic guidance in the department

4. Special Support

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

1- For low achievers student
   - Direct communication between the faculty and students in order to identify the most important problems experienced by students. It is also, achieved through the academic system.
   - Department setup database for low achievers' student and each of them has an academic advisor.
2- For disabled students in the department
   No disabled student
3- For gifted and talented
   - Honoring talented students in every semester
   - Training two excellent students during is full semester after graduating and giving them a certificate in practical experiences.

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	**Physical chemistry**	**Physical chemistry**		**1**	**1**	**2**
Associate Professor	**Biochemistry**	**Biochemistry**		**1**	**1**	**2**
Assistant Professor	-	-	-	-	-	-
Lecturer	-	-	-	-	-	-
Teaching Assistant	**Organic chemistry**			**1**	**1**	**2**
Technicians and Laboratory Assistant	**Chemistry**	**Chemistry**		**3**	**0**	**3**
Administrative and Supportive Staff	-	-	-	-	-	-
Others (specify)	-	-	-	-	-	-

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

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

Textbooks and References

1. CRC Handbook of Chemistry and Physics, 89th ed.
2. Industrial Environmental Chemistry by Sawyer, Donald T., and Arthur E. Martell
3. Industrial Aromatic Chemistry by Franck, Heinz-Gerhard, and Jürgen Walter Stadelhofer
4. Survey of Industrial Chemistry by Chenier, Philip J.
5. Elements of the p-Block by Heaton, Alan (Chapter on Industrial Inorganic Chemistry)
6. Industrial Photoinitiators (Chapters on Cationic Chemistry)
7. High-Pressure Process Technology: Fundamentals and Applications
8. Organic Electrochemistry (Chapter on Industrial Electroorganic Chemistry)

E-learning Resources

1. EuChemS e-Learning Platform: Offers courses such as "Good Chemistry – Methodological, Ethical, and Social Implications" by Dr. Jan Mehlich

2. edX online chemistry courses: Provides introductory and specialized chemistry courses

Web-based Resources

1. American Chemical Society (ACS) Education Resources:
2. ChemMatters Magazine: Free online articles with downloadable puzzles and Teacher's Guides
3. Chemistry in the Community: A high school textbook teaching chemistry through societal issues
4. Journal of Chemical Education: For teaching and learning chemistry at middle school level and above
5. Energy Foundations for High School Chemistry: Free laboratory investigations, demos, and student readings
6. Landmark Lesson Plans: Inquiry-based student activities
7. Green Chemistry Educational Resources
8. Safety Resources:
9. Safety Data Sheets: Information for assessing chemical hazards
10. ACS Guidelines and Recommendations for Teaching Middle and High School Chemistry
11. Chemical & Laboratory Safety - High School Labs
12. WIU Libraries Guides: Provides citations and links to books and other reference resources related to various branches of chemistry
13. Ferris State University's Industrial Chemistry Technology Certificate program resources
14. These resources cover a wide range of topics in industrial chemistry, from fundamental concepts to specialized areas, and include both traditional textbooks and modern e-learning platforms. They should provide a comprehensive foundation for students in the Industrial Chemistry program.

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

Specialized committees are formed in the program to determine the names of the books and references prescribed for all courses and the quantity required of each according to the student's number.

-A list of the required books and references recorded by the committee.

-The list of books and references is a certified by the Chemistry Program Council

-The a certified list of books and references is submitted to concerned authorities.

-These references are available in time before the beginning of the semester.

-Some internationally approved books are translated by faculty members.

- The public library of the university is available for all.

- Participate in the university database, which provides access to most international publishers.

- The participation in the Saudi Digital Library is allow for all program members.

- Evaluate program laboratories, and monitor materials, equipment and tools that need to provide before the beginning of each semester.

- The faculty members of the program toured all the designated classrooms of the program and identified the needs before the beginning of the semester

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

Safety, Health and Environmental Policy

The Department of Chemistry is committed to the provision of a safe and healthy working, training and learning environment for all its faculty members, nonacademic staff members, students and visitors. The Department aims to prevent any accidents from occurring and will take all possible steps to make the Department a safe workplace. Where reasonably and practically possible, the Department is committed to:

1. Safety and Health Making every effort to ensure health and safety in all phases of teaching, research, and in the development and commissioning of equipment/experiments and facilities. In this respect, we will identify all safety and health hazards and review constantly safety and health policies, rules and guidelines to reduce, if not eliminate, any hazards present. We will ensure that all faculty members, nonacademic staff members, students, take it as a personal responsibility to prevent injury to themselves and/or their colleagues.

2. No Accidents and Injuries Making every effort to achieve a safe and healthy working environment.

3. Environmental Protection Making every effort to minimize and defuse wastes and emissions so as to preserve the local environment.

4. Conformance with Laws and Regulations

Complying with all relevant University and legal requirements in relation to safety, health and environmental policies.

5. Education and Training

Establishing and promoting safety and health awareness by offering both in-house or external training courses, and communicating the importance of such awareness to prevent accidents and injuries.

6. Continual Improvement
Establishing and implementing a management system to ensure health and safety in our activities as well as to protect the environment, and continually improving this system at all levels of our organization

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

Chemsitry Program_s quality system manual.pdf

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

1/Preparing the description of courses

2/Identify a coordinator for each course to supervise its teaching, adhere to the description specified by the department's academic committee, and apply the teaching and learning strategies and evaluation contained in it.

3/The, course coordinator submits course files to the Quality Assurance Unit at the end of each semester.

The course coordinator prepares performance indicators reports regularly and periodically

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

- All teaching materials are unified in male and female sections
- All exams are unified in male and female sections
- Each course has one coordinator

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

A systematic approach to assessment is comprised of the following six steps:

1. Articulate a comprehensive, meaningful and measurable set of Program Learning Outcomes (PLOs).

2. Demonstrate how the curriculum supports the PLOs.

3. Create a plan to systematically gather evidence of student achievement of the PLOs.

4. Collect, analyze, and interpret the evidence.

5. Use the resulting information to develop recommendations to improve student learning (including revising the curriculum, teaching and advising methods) and/or to improve PLOs and the methods of assessment.

6. Implement the recommendations

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Program	Questionnaire for graduates	program evaluation questionnaires for graduates	End of each semester
Program	Questionnaire for Employer	Apply the Employer surveys	End of each semester
Program	Questionnaire for student	Applying student satisfaction questionnaire for services, facilities and equipment	End of each semester
Program	Questionnaire for students	Program evaluation questionnaire for students	End of each semester
Program	Questionnaire	independent advisors and/or evaluator	End of each semester
Program	Questionnaire	Self-evaluation of the program	End of each semester
Courses and program	Assessment tools	Direct assessment	End of each 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, and others.
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 (1446) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P01	Percentage of achieved indicators of the program operational plan objectives	%90	By operational plan report	End of each semester
2	KPI-P02	Students' Evaluation of quality of learning experience in the program	4.1	Questioner	End of each semester

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
3	KPI-P03	Students' evaluation of the quality of the courses	4.3	Questioner	End of each semester
4	KPI-P04	Completion Rate	50%	By analysis of the number of students	End of each semester
5	KPI-P05	First-year student retention rate	-	By analysis of the number of students	End of each semester
6	KPI-P06	Students' performance in the professional and/or national examinations	-	Analysis of national examinations results	End of each semester
7	KPI-P07	Graduates' employability and enrolment in postgraduate programs	20	Data base of graduates	End of each semester
8	KPI-P08	Average number of students in the class	10	Direct analysis	End of each semester
9	KPI-P09	Employers' evaluation of the program graduate's proficiency	-	Questioner	End of each semester
10	KPI-P10	Students' satisfaction with the offered services	3.7	Questioner	End of each semester
11	KPI-P11	The ratio of students to teaching staff		Direct analysis	End of each semester
12	KPI-P12	Percentage of teaching staff distribution	associated 15% assistant %70 teachi %15ng assistant	Direct analysis	End of each semester
13	KPI-P13	The proportion of teaching staff leaving the program	%0	Direct analysis	End of each semester
14	KPI-P14	Percentage of publications of faculty members	%100	Direct analysis	End of each semester
15	KPI-P15	Rate of published research per faculty member	2.0	Direct analysis	End of each semester

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	**Chemistry council**
Reference No.	**16**

Date	8/12/2024