هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-103
2022

Program Specification

Program Name:	**Bachelor of Science in Chemistry**
Program Code (as per Saudi university ranking):	**05 3 1 01**
Qualification Level:	6
Department:	Chemistry
College:	College of Science
Institution:	Jazan university (JU)
Program Specification:	New ☐ updated* ☒
Last Review Date:	25 Dec 2023

*Attach the previous version of the Program Specification.

Content:

A. Program Identification and General Information

1. Program's Main Location :

- *Main Campus*
  Male Section: university city male Campus, College of Science, Jazan University
  Female Section: Mahlia Campus, College of Science, Jazan University

2. Branches Offering the Program (if any):

- *Samta University College, College of Science - Samtah*

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

none

4. Professions/jobs for which students are qualified

At the end of the program, students will be prepared for the following professions and occupations *according to Professions and jobs as in Ministry of Civil Service and Saudi National Commission:*
https://www.stats.gov.sa/en/page/292,

6.1. Assistant researcher in chemistry
(This series includes the tasks related to the specialized works in the field of setting standards and requirements for goods and products and their basic components, including the examination of measuring instruments and calibration by standard devices to ensure that they perform their work accurately and do other work that related to this area.
6.2. Assistant laboratory researcher in chemistry
(This series includes the functions related to the work of the chemistry labs in the preparation of researches, studies, reports and the use of instruments and devices for the analysis, examinations and chemical or physical composition of the materials, elements, samples and other related works in this field.
6.3. Laboratory Analyst
(This series includes functions related to the work of laboratories and the use of instruments and equipment for the conduct of analyzes, tests and chemical or physical formulations of materials, elements and samples and other related activities in this field.
6.4. Laboratory Technician
(This series includes the functions related to the works of technical assistance for the conduct of analyzes or chemical structures, etc., and the subsequent results, the preparation of reports and supervision of these works and other related work in this area.
6.5. Environmental Protection Specialist
in the Field of Chemistry This series includes the functions related to the work of environmental protection from the preparation of researches, studies, reports, the use of machines and equipment and conducting experiments and analyzes to identify the extent of pollution of water, air, soil and the level of hazardous wastes including radioactive waste and the level of natural radioactive materials such Radium, Uranium and Thorium chains as well as the level of radiation in the waste of mines and radioactive waste generated by hospitals and some industries and research centers also include the preparation of studies and research and make recommendations in the light of information and data and The activities related to protecting the environment from waste from mines, quarries and hospitals, analyzing the level of these wastes, finding the appropriate safety and safety means to protect the environment and implementing the specific safety regulations for this area and carrying out other works. Related to this area)
6.6. Environmental Chemical Foreman
(This series includes functions related to the environment from the control and recording of hazardous waste data, air and water pollution, environmental degradation, use of instruments, devices and radiological

reagents, fieldwork of sampling and information collection, preparation of descriptive reports, technical supervision of these works and other related works the field)

6.7. Chemical safety and security

(This series includes the functions related to the preparation of planning and organizational studies to develop plans and programs and chemical safety instructions for public and private buildings and facilities and to ensure the safety and suitability of safety equipment and guidance and guidance and discovery of waste in the area of safety and safety of the work environment and the preparation of reports and recommendations and technical Safety and other related activities).

*6**.8. Chemotherapy Specialist***

This series includes functions that belong to the chemical processing of documents, archives and manuscripts, sterilization, removal of contaminated spots for paper and leather, and technical supervision of these related works).

***6.9.Chemical Monuments Technician**-*

9This series includes the functions related to the technical works in the field of prospecting and the search for antiquities and the subsequent works of restoration, maintenance, documentation, supervision of these works and other related works).

5. Relevant occupational/ Professional sectors:

- *Teaching assistant.*
- *Chemical analysis.*
- *Scientific research.*
- *Forensic Medicine.*
- *Petrochemical Industries.*
- *Pharmaceutical Industries.*
- *Plastic Industries.*
- *Cosmetic Industries.*
- *Water treatment Industries.*
- *Food Industries.*
- *Quality Assurance Units.*

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1. none		

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

Exit points/awarded degree	Credit hours
none	

8. Total credit hours: (121)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Provide educational, research services and build effective partnerships to serve the community in chemistry

2. Program Objectives:

O 1. To provide a comprehensive and optimal education based on high-quality educational strategies.
O 2. Training students to acquire the knowledge and professional competence necessary to work effectively to meet the requirements of the labor market.
O 3. Providing students with supportive means of learning practices and enhancing their personal skills that enable them to work successfully.
O 4. Engaging students in innovative and interdisciplinary research.
O 5. Provision of trained graduates equipped with values for serving the Kingdom.

O 6. Encouraging scientific research that contributes to meeting the requirements of development with wide economic and social benefits.
O 7. Creating strong links with the community and providing effective community services.

3. Program Learning Outcomes*	
Knowledge and Understanding; *Upon completion of the program, students are able to:*	
K1	*Demonstrate a broad understanding and critical view of the principal theories, concepts and terminology of chemistry area or field of work, and in addition the necessary background in Physics and Mathematics*
K2	*Describe correctly Chemical phenomena using chemical principles and scientific reasoning*
Skills; *Upon completion of the program, students are able to:*	
S1	*Demonstrate an ability in critical thinking, numeracy, statistical, analytical reasoning, use graphs, charts for solving problems (in the synthesis, measurement, and modeling of chemical systems),*
S2	*Apply their experimental basics and skills to use laboratory equipment, modern instrumentation, and classical techniques for carrying out experiments in various fields of chemistry and to write a report representing the scientific data.*
S3	*Examine his material and lab safety background to Follow proper procedures and regulations for safe handling and use of chemicals.*
S4	*make effective use of communication, and online technology about chemistry topics in order to improve their basic knowledge in writing (report and paper) with a good verbal and clear scientific language.*
Values, Autonomy, and Responsibility; upon *completion of the program, students are able to:*	
V1	*Work as a group leader in cooperation with other colleagues*
V2	*Perceive the ethical and social dimensions of practicing chemistry or any related field.*

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

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit		Percentage
			CH	ECTS	
Institution Requirements	Required	***3***	***6***	***10***	***4.96%***
	Elective	***0***	***0***		***0***
College Requirements	Required	***7***	***24***	***40.1***	***19.83%***
	Elective	***0***	***0***		***0***
Program Requirements	Required	***30***	***89***	***148.6***	***75.21%***
	Elective	***0***	***0***		***0***
Capstone Course/Project		***1***	***2***	***3.3***	***1.65%***
Field Training/ Internship		***0***	***0***	***0***	***0***
Residency year		***0***	***0***	***0***	***0***
Others		***0***	***0***	***0***	***0***
Total		**41**	*121*	*202*	*100%*

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

CH: Credit hours ECTS: European Credit Transfer and Accumulation System

3CH=5ECTS

2. Program Courses

Year	Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Year 1	Level 1	101 CHEM-4	General Chemistry	Required		4	College
		104 ENGL-3	English I	Required		3	College
		101 ISLM-2	Islamic Culture I	Required		2	University
		102 ARAB-2	Arabic Writing	Required		2	University
	Level 2	101 MATH-3	General Mathematics	Required		3	College
		105 ENGL-3	English 2	Required	104 NGL-3	3	College
		101 PHYS-4	General Physics	Required		4	College
	Level 3	201 MATH-3	Differentiation & Integration	Required	101 MATH-3	3	department
		106 ENGL-3	English III	Required	105 ENGL-3	3	College
		201 CHEM-4	General and physical Chemistry	Required	101 CHEM-4	4	department
Year 2	Level 4	101 BIO-4	General Biology	Required		4	College
		231 CHEM-3	Aliphatic organic Chemistry	Required	101 CHEM-4	3	department
		102 ISLM-2	Islamic Culture II	Required		2	University
	Level 5	211 CHEM-3	Volumetric Analytical Chemistry	Required		3	department
		221 CHEM-4	Chemistry of Main Groups	Required		4	department
		202 MATH-3	Differential Equations	Required	201 MATH-3	3	department
	Level 6	212 CHEM-3	Chemistry of Gravimetric Analysis	Required	211 CHEM-3	3	department
		232 CHEM-3	Aromatic Organic Chemistry	Required	231 CHEM-3	3	department
		241 CHEM-3	Thermodynamics	Required	201 CHEM-4	3	department
Year 3	Level 7	342 CHEM-3	Kinetic Chemistry	Required	241CHEM-3	3	department
		322 CHEM-4	Chemistry of Transition Elements	Required	221CHEM-4	4	department
		333 CHEM-3	Heterocyclic Organic Chemistry	Required	232 CHEM-3	3	department
	Level 8	344 CHEM-3	Electrochemistry	Required	241CHEM-3	3	department
		343 CHEM-3	Surface Chemistry & Catalysis	Required	241CHEM-3	3	department
		335 CHEM-3	Organic Reaction Mechanisms	Required	232 CHEM-3	3	department
		437 CHEM-2	Stereochemistry	Required	232 CHEM-3	2	department
	Level 9	323 CHEM-3	Co-ordination Chemistry	Required	322 CHEM-4	3	department
		447 CHEM-3	Quantum Chemistry	Required	202 MATH-3	3	department
		314 CHEM-3	Electrochemical analysis methods	Required	344 CHEM-3	3	department
		334 CHEM-2	Spectroscopy of Organic Compounds	Required	232 CHEM-3	2	department
Year 4	Level 10	436 CHEM-3	Chemistry of Natural Products	Required	322 CHEM-4	3	department
		424 CHEM-3	Lanthanides & Actinides	Required	322 CHEM-3	3	department
		415 CHEM-4	Methods of Instrumental analysis	Required	232 CHEM-3	4	department
	Level 11	446 CHEM-2	Polymer Chemistry	Required	342 CHEM-3	2	department
		491 CHEM-2	Graduation Project	Required	department Approval	2	department
		313 CHEM-3	Chromatographic Analysis	Required	212CHEM-3	3	department
		439 CHEM-3	Principles of Biochemistry	Required	232 CHEM-3	3	department
	Level 12	445 CHEM-3	Solution Chemistry	Required	344 CHEM-3	3	department
		425 CHEM-2	Group Theory	Required	322 CHEM-4	2	department
		438 CHEM-3	Organic Applied Chemistry	Required	232 CHEM-3	department Approval	department
		448 CHEM-2	Photochemistry	Required	447 CHEM-3	2	department

* 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)

https://drive.google.com/drive/folders/1duFI9va1zoWU_ioJJyWf1_aNp2vKxGQ-?usp=sharing

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 and M* used to assess PLOs)*.

Course code & No.	Program Learning Outcomes							
	Knowledge and understanding		Skills				Values, Autonomy, and Responsibility	
	K1	K2	S1	S2	S3	s4	V1	V2
101CHEM-4	I	I	I	I	I			
104ENGL-3								
101ISLM-2								
102ARAB-2								
101MATH-3								
105ENGL-3								
101PHYS-4								
201MATH-3								
106ENGL-3								
201CHEM-4	I	I	I	I	I			
101BIO-4								
231CHEM-3	I	I	I	I	I			
102ISLM-2								
211CHEM-3	I	I	I	I	I			
221CHEM-4	I	I	I	I	I			
202MATH-3								
212CHEM-3	I	I	I	I	I			
232CHEM-3	I	I	I	I	I			
241CHEM-3	I	I	I	I	I		I	
342CHEM-3	P	P	P	P	I		I	
322CHEM-4	P	P	P	P	I		I	
333CHEM-3	P	P	P	P	I		I	
344CHEM-3	P	P	P	P	P		P	
343CHEM-3	P	P	P			I		I
335CHEM-3	P	P	P	P	P		P	
437CHEM-2	P	P	P			I		I
323CHEM-3	P	P	P	P	P		P	
447CHEM-3	P	P	P			I		P
314CHEM-3	P	P	P	P	P		P	
334CHEM-2	P	P	P			P		P
436CHEM-3	M	M	P	M*	P	P	P	
424CHEM-3	M*	M	M	M	M		M	
415CHEM-4	M*	M	M	M	M		M	
446CHEM-2	M	M	M			M*		M
491CHEM-2	M	M	M*	M	M*	M*		M*
313CHEM-3	M	M	M	M	M		M*	

Course code & No.	Program Learning Outcomes							
	Knowledge and understanding		Skills				Values, Autonomy, and Responsibility	
	K1	K2	S1	S2	S3	s4	V1	V2
439CHEM-3	M	M	M	M	M*		M	
445CHEM-3	M	M	M	M*	M		M*	
425CHEM-2	M	M*	M			M		M*
438CHEM-3	M	M*	M	M	M		M	
448CHEM-2	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.

- *Teaching and learning strategies are planned and identified in accordance with each course's learning outcomes (CLOs), which are aligned with PLOs. Furthermore, these teaching strategies are chosen based on the learning domains. Class discussion, Projects and Seminars, Self-learning / Brain Storming, Reports and Oral Presentations, and Interactive Lectures are examples of active learning strategies.*
- *We have a varied set of assessments designed into our courses, ranging from time-constrained examinations through to mini- dissertations. A key element of the assessment methodology is the application of learning, and approaches which promote deep learning rather than shallow learning experiences,*
- *The instructor will explain the methods used to assess student progress and the criteria for assigning a course grade at the start of the course. Examinations, quizzes, homework assignments, laboratory write-ups, research papers, small group problem solving of questions arising from application of course concepts and concerns to actual experience, oral presentations, or maintenance of a personal lab manual are examples of methods.*
- *Grades and competency will be determined by the student's ability to demonstrate knowledge of specific chemistry topics and complete work by assigned deadlines; participate in and complete reports on assigned laboratory experiments; Feedback, focus groups, and surveys will be used to assess skills.*
- *Another instructor and the department head will check the grade, exam, and test results to verify the results. The QA committee then compares the results with other courses at the same level to determine which courses have grade shifts.*
- *Also visiting some factories and research centers, participate in activities inside our department or on the university, attend workshops, etc. will help our students to acquire more and more experiences.*
- *See also, department manual, student book and QMS ch7.*
- *In addition, extra-curricular activities complement the academic Chemistry program curriculum by refining and developing interpersonal skills and behaviors, hence, enhancing students' experience. The impact of student engagement in extracurricular activities on achievement and employment is becoming evident nowadays.*
- *The extra-curricular activities included in the report cover the following fields:*

Sports, *which covers playing on the college and university sport teams. Many of college students join sports programs every year. Being a member of your department's sports team can be a rewarding and enriching experience. Playing sports teaches student the importance of teamwork, leadership and working hard to achieve his goals.*

Community Service, *which covers any sort of volunteer work, either in your community, on a national scale, or abroad, most educational institutions offer regular opportunities for students to give back to the community. These activities take a variety of shapes, including participating in environmental cleanup efforts and mentoring students in elementary schools. Including volunteer work on the resume shows the degree of commitment to helping your community and the willingness to serve others*.

Professional training and Chemistry club, *which shows the passionate about learning and gaining a competitive advantage. At the collegiate level, many high-performing students are invited to join professional societies. These are typically national associations that seek out members who are skilled in a particular field. Joining one of these societies shows the commitment to your chosen industry and the level of professional competency. Belonging to a club or taking part in professional training is beneficial because it shows potential employers that the student has some technical skills and that you intentionally sought out opportunities to develop professionally. The Chemistry program organizes at each semester a wide range of training courses covering different areas in chemistry fields.*

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).

The chemistry program employs a variety of methods to assess and evaluate the extent to which its program learning outcomes are met. These methods are used to collect the data required for the assessments. The data is then evaluated by interpreting it in order to determine how well the outcomes are being achieved. The outcomes of both the assessment and evaluation processes are eventually used to improve the program continuously. The following steps are used for program assessment, evaluation, and feedback for continuous improvement:

1. *Assessment methods for program learning outcomes can be direct assessment usually relies on the course work or indirect assessment methods (Course evaluation survey, Student's survey on evaluating the chemistry program, Alumni survey, Employer's survey) usually obtained by using surveys (includes designing forms of surveys and appropriate questions for the specific and applicable data).*
2. *The collected data is analyzed and compared to a pre-set (KPI) performance indicator, which constitutes the evaluation processes.*
3. *Checking the degree to which the data evaluation results meet the pre-set targets will be the force for the continuous improvement processes.*

The tools are summarized in the following Figure

Domain	Knowledge and understanding	Skills	Values, Autonomy, and Responsibility
Methods of Assessment	• *Quizzes* • *HW* • *MID& Final Exams* • *Discussion (rubrics Based)*	• *Quizzes* • *HW* • *MID& Final Exams* • *Discussion (rubric Based)* • *Practical evaluation* • *Seminar evaluation [Rubrics-based]* • *Assignment* • *Seminar evaluation [Rubrics-based]*	• *Discussions [Rubrics-based]* • *Seminar evaluation [Rubrics-based]* • *Practical tests* • *Projects [Rubrics-based]* • *Continuous evaluations Reports and* • *Surveys [Rubrics-based]* • *Oral presentation [Rubrics-based]*

D. Student Admission and Support:

1. Student Admission Requirements

All requirements are aligned with JU admission requirements

1. *The student applies to Chemistry program must have the certificate of the high secondary school (scientific section).*
2. *School Recommendations of highly regarded ethics and accountability.*
3. *Be a student of a Saudi national or Saudi Arabia mother.*
4. *Must not have been on the receiving a high school or its equivalent for more than five years.*
5. *Be at least average in high school about 70%.*
6. *Should not be disconnected from Jazan University for academic reasons, disciplinary or disconnected from another university for disciplinary reasons.*

The Admission of New Students (Article No (2):

The university council according to the college councils' proposal, as well as, proposal from other related bodies determines the number of students to be admitted next year.

Administrative Rules of Jazan University (Article No (3):

The Deanship of Admission and Registration according to the college councils' proposal submits a statement with the number of students to be admitted to the next semester or academic year in order to submit it to the university council.

Conditions necessary for admission in the university:

1. *The student must have a certificate of general secondary school or its equivalent (from inside kingdom or outside it)*
2. *The certificate or its equivalent must not exceed 5 years since the graduation of the holder from secondary school. In this respect, the university council may have the right to make exception if there are other convincing reasons.*
3. *The student must have a good conduct.*
4. *The student must pass in all tests or private interview deemed necessary by the university council.*
5. *The student must be medically fit.*
6. *The student must get a letter of approval from his/her employer if he/she works in a public or private sector.*
7. *The student must satisfy any other condition identified by the university council.*

Administrative Rules of Jazan University:

1. *If a student has been dismissed from Jazan University or from any other university for disciplinary reasons, the admission is considered null and void unless otherwise proved later*
2. *The student must not be registered in other university beside the University of Jazan, aiming to obtain a certain degree or he/she has already obtained it. Then the deanship of admission and registration has the right to cancel his/her admission if other thing is proved later. In this case, the University Council has the right to make exception if it deems necessary.*
3. *The university president has the right to make exception for the student if there are convincing reasons.*

Article No 4:
From among all candidates wishing for admission, priority is to those who satisfy all conditions according to the marks they obtain in general secondary school certificate, and the interview as well as admission tests if any.

Administrative Rules of Jazan University:

The Deanship of Admission and registration upon recommendations from college councils shall prepare a presentation of the mechanisms of giving priorities to the students applied for admission to be submitted to the university council or to the competent authority.

- http://deanships.jazanu.edu.sa/sites/en/adm/Pages/AdmissionofFreshmanyearstudents.aspx
- http://deanships.jazanu.edu.sa/adm/PublishingImages/flge/%D8%AF%D9%84%D9%8A%D9%84%20%D8%A7%D9%84

%D8%B7%D8%A7%D9%84%D8%A8%201.pdf
• http://deanships.jazanu.edu.sa/adm/Documents/%D8%AF%D9%84%D9%8A%D9%84%20%D8%A7%D9%84%D8%B7%D8%A7%D9%84%D8%A8%20%D9%84%D9%84%D8%AE%D8%AF%D9%85%D8%A7%D8%AA%20%D8%A7%D9%84%D8%A5%D9%84%D9%83%D8%AA%D8%B1%D9%88%D9%86%D9%8A%D8%A9.pdf
Other regulation concerning admission may be seen in this links:

https://www.jazanu.edu.sa/dev/media/sites/61/2020/05/The-Student-Guide-English.pdf

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 orientation program for new students is held every time the department admits fresh students. The department Head presides over a welcoming session for new students attended by almost all the faculty members and administration staff. The Orientation program is designed to help students get acquainted with the following:

- *Vision, mission and objectives of the department, college and university.*
- *University and college regulations and code of conduct.*
- *Tips on leading a successful college life in line with their potential career goals.*
- *Department and college facilities and places.*
- *plan of study review course*
- *methods of evaluation*
- *Wellness, self-care*
- *faculty expectations*
- *certification and licensure information*

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).

Academic Counseling:

The academic advising unit provides courses designed to help students succeed in college and make wise career and life choices. Special topics courses on various aspects of an academic career and personal development are also available. Each student in the Chemistry program is assigned an academic advisor, whose job it is to provide students with consultation and academic support, primarily during registration but also at any time throughout the semester. For any issues or concerns regarding their academic life, students should consult their advisor, as well as the Department Chair and the Dean of the College. Due to the large number of Chemistry students, they are divided among the colleges for advising. The procedure is as follows:

- *Student Academic Counseling Committee is in charge of student counseling.*
- *Each Faculty is assigned a group of students for counseling.*
- *Faculty will be available for student counseling at specific office hours during on daily basis.*
- *Faculty should make a file for each student in his counseling group where student contact information, a copy of student timetable, a copy of student academic record is kept and updated every semester.*

Career Counseling:

The alumni unit and academic advising provide opportunities for career exploration and evaluation of interests, aptitudes, skills and other characteristics related to vocational and pre professional planning and job success. This includes:

- *Career Assessments and Interpretations.*

- *Career Workshops such as writing CV., interviewing assistance, researching occupations, labor market information, and career planning.*
- *Faculty of science is going to plan to invite the stakeholders from the different authorities and ministries in program advisory committee as speakers in Alumni celebration and workshops.*

Psychological Counseling:

There is no psychologist in faculty of science, but cases requiring psychological guidance are referred to the Academic Guidance Unit of the Deanship of Student Affairs at JazanUniversity

Social Counseling:

Social programs in Jazan university focus on preparing students for a leadership role in all biological aspects, which can help in the developmental process and community services and problem solving of most ecological and biological difficulties.

4. Special Support

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

The Deanship Students' Affairs is concerned with overcoming all the difficulties and challenges faced by the university students.

Low achievers

- *College evaluating those profiles academic achievement of students and monitor their performance during the year.*
- *Early during the year, academic affairs committee prepares a list with names of students who are faltering and whose performance is below standard.*
- *The list is forwarded to the assigned academic advisor who initiates a remediation process.*
- *Academic advisors meet with students and provide immediate feedback.*
- *Recommendations for additional assistance of special cases are forwarded to the Dean of college.*
- *The system permits those failing students are given a second chance and are allowed to re-sit the exam.*
- *The college council requests that a departmental investigation and action-oriented review is triggered if the scores for a particular exam fall below college benchmark.*

Disabled

- *The college launches periodical awareness campaign to support people with special needs.*
- *Urged the employees of the college not to use the facilities and equipment meant for people with special needs. Besides, the availability of facilities for people with special needs in all buildings of the college and parking.*

Gifted and talented

- *Rewarding of gifted, talented and outstanding students via factual, moral reward or facilities to participate in extra-curricular and recreational activities.*

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	7	▪ Analytical ▪ Organic ▪ Inorganic ▪ Physical ▪ Biochemistry	Ability to work well with a range of people, organization, teamwork, excellent written and verbal communication	5	2	7
Associate Professor	15	▪ Analytical ▪ Organic ▪ Inorganic ▪ Physical ▪ Biochemistry	Ability to work well with a range of people, organization, teamwork, excellent written and verbal communication	12	3	15
Assistant Professor	27	▪ Analytical ▪ Organic ▪ Inorganic ▪ Physical ▪ Biochemistry	Ability to work well with a range of people, organization, teamwork, excellent written and verbal communication	14	13	27
Lecturer	17	▪ Analytical ▪ Organic ▪ Inorganic ▪ Physical ▪ Biochemistry	Good organizational, ability to manage groups, flexibility and creativity	4	13	17
Teaching Assistant	6	▪ Organic ▪ Inorganic	Good organizational, ability to manage groups, flexibility and creativity	3	3	6
Technicians and Laboratory Assistant	4	▪ Analytical	Meticulous attention to detail, excellent written and oral communication, good team working…	2	2	4
Administrative and Supportive Staff	2	▪ **Administrative**	Adept in Technology, verbal & written communication, organization, time management, strategic planning...	1	1	2
Others (specify)	none	none	none	none	none	none

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.)

- A copy of learning resources for each course is kept in the relevant Course File in the Program QA committee.
- A list of learning resources is kept in the Program QA committee.
- The list of learning resources is annually updated by teaching Faculty and gets approval by Program Board.
- The updated list of learning resources is then raised to College of Science Deanship and hence to Deanship for Library Affairs
- All resources and recommended resources are listed in CS.

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

Library

The college library is located on the second floor; it is a larger, well-equipped library that serves all faculty departments and contains a recent collection of books, indexes, videos, and computer software to supplement the holdings of Jazan University's main library. It has enough books for all students in the college, including chemistry students. Aside from the digital library of Saudi Arabia (SDL), all university students may use the central library in the university. Students may borrow books from the library for a week and then return them to make room for another student.

Site for SDL; https://sdl.edu.sa/SDLPortal/ar/Publishers.aspx

Teaching Laboratories

Multiple teaching laboratories serve students in all areas of chemistry, including introductory courses and courses in organic, inorganic, physical, analytical, and biochemistry. Our teaching labs are equipped with state-of-the-art instrumentation that students use regularly.

Equipment & Instrumentation

Department provide Labs with all necessary equipments, tools, safety aids and chemicals for undergraduate study. We have excellent UV-absorption, modern atomic absorption, GC-MS, FTIR, flam photometer, and HPLC instruments.

Medical facilities

Inside each Lab and other places, a first aid boxes are available for emergence. Near our campus there is a medical center and, in the college, also we have a medical room.

Classroom Supplies

Classrooms have adequate seating, air conditioning, an overhead projector with screens, a white board, writing pens, and dusters. Academic departments can provide additional classroom supplies.

Textbooks and Course Materials

Wherever necessary, a scheduled course has a designated textbook, which has been adopted by the department. As all students registered in a course will have a copy of this book, an instructor may freely refer to the textbook as and when necessary. The adoption of a textbook does not restrict the instructor to use this book exclusively in his teaching and therefore he may freely adopt other references to supplement teaching material, which may include his own prepared lecture notes.

Where there is no designated textbook, an instructor must rely on his own collection of materials and whenever necessary and appropriate, he should distribute the course materials to the students in his class. An instructor can propose a new textbook, either as a replacement for an existing one or as a new addition for a course where there is no designated textbook, by following the University`s procedure, which requires approval of the department, the college and the University.

Also, there are several study open places in all floors, computer rooms, Sports activities Room, Cafeteria, and theater.

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

College of science is committed to providing a safe and healthy campus environment. Among its highest priorities are the health and safety of all faculty, staff, and students, the visiting public, and members of the neighboring community.in order to implement environmental and occupational health and safety programs and to ensure compliance with all relevant governmental laws and regulations. A variety of health care services to students, faculty, staff and community members. We accept a wide range of health insurance plans.

- The Campus Health Clinic is located inside the main campus and a small room over the medical support inside the science building.
- Smoking is prohibited in any University facility and on any University grounds.
- First aids boxes are located in almost all rooms.
- The purpose of the Chemical Safety Program is to ensure the proper handling of hazardous chemicals, as well as hazardous waste management and disposal. Exposure to hazardous chemicals is kept at a minimum by using the appropriate Personal Protective Equipment and by performing experiments in a certified chemical fume hood.
- The Chemical Hygiene Committee oversees lab safety issues and reviews information regarding pertinent regulations and requirements.
- Fire prevention guidelines are listed in all places
- Emergency Exit doors in all parts with sufficient Signboards in all places.
- Safety and safety instructions are announced at the laboratories and the places where students gather.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

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

For courses that are taught outside the program and include the first-year courses and general courses such as Arabic, Islamic culture and English language courses…etc.

1. The scientific department concerned with teaching these courses shall prepare the course description and specification according to NCAAA latest formats
2. The course is taught by the teaching staff of these scientific departments of the university
3. The teaching staff after the final exam prepares a complete course file of the course and send it to our department via the vice dean of development in faculty of science.
4. The Program Assessment Committee reviews the course reports of all courses.

QA committee contact the staff tough courses to our student to collect all related data about out student.
We review CS, CR, Exams, Quizzes, Assessments, assignments, attendance sheets, final marks and grades, feedbacks, …
By comparing the results of our students in the faculty and university requirement courses we could improve the quality of those courses.

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

In sections for male and female students the coordinator of both sections participates in institutional governance and be fully involved in strategic planning, decision making, and senior administration with effective and continuing communication between sections. Strategic planning ensures equitable distribution of resources and

facilities to meet the requirements of program delivery, research, and associated services in each section and quality evaluations consider performance at each section as well as for the institution as a whole.

- Male and female sections are represented in the membership of relevant committees and councils and participate fully in decision making through processes that are consistent with bylaws and regulations of the Higher Council of Education.
- An effective communication between members from each section on these committees and councils was established, and individuals in the different sections carrying out related activities were fully involved in planning, evaluations and decision making.
- Planning processes and mechanisms for performance evaluation led to comparable standards in each section while taking account of differing needs.
- Quality indicators, evaluations and reports show results for both sections indicating similarities and differences as well as overall performance.

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

The Assessment and Evaluation

The BSc. Chemistry program uses different tools and processes to assess and evaluate the extent to which its PLOs are being attained. These processes are used to gather the data which is necessary for the assessments. Evaluation, in the form of interpreting the data, is then carried out to determine how well the outcomes are being attained. The results of both the assessment and evaluation processes are finally utilized for the continuous improvement of the program. The steps used for the assessment, evaluation, and feedback to the continuous improvement of the program follow the following three steps:

1. PLO assessment tools (i.e., data collection) can be direct or indirect. PLOs are usually assessed directly through course work, whereas PLOs are usually assessed indirectly through surveys. This process includes designing survey forms and appropriate questions for the specific and applicable data.
2. The collected data is analyzed and compared to a predetermined performance indicator, which serves as the basis for the evaluation processes.
3. The force for continuous improvement processes will be checking the degree to which the data evaluation results meet the pre-set targets.

Course Mapping of PLOs:

To set the stage for the assessment process, the material covered in each course, together with its expected course learning outcomes (CLOs), are used to identify the certain number of PLOs that are most probably be covered by the course. It is important to mention here that each CLOs must be associated with one of the chosen PLOs. Thus, the PLO with a single CLO implies that this CLO statement may be identical to that of the PLO. To this end, each course has identified some specific number of measurable (CLOs) that are mapped to the chosen different PLOs. This process of course-PLO mapping is carried out for each course. It is also important to mention here that we have chosen not to map university requirements or the basic science courses (Math, Physics, Biology, and Mathematics) to the outcomes. These do automatically satisfy the PLOs. The mappings are made by each course team (involving course coordinator(s) and instructors, for the course) in consultation with the Program Quality Assurance Committee.

Program Learning outcomes:

Assessing and evaluating the extent to which the PLOs are being fulfilled for the BSc. Chemistry program could be employed using various processes. These processes are defined to keep data gathering efficient and effective, and the evaluation pertinent to the process of continuous improvement. To achieve these goals, two types of

assessments, direct and indirect are performed. The indirect assessment is performed using surveys while the direct assessment results are obtained from student coursework-based evaluations. Accordingly, this is beneficial during the planning for the present and future expanded assessment processes. The following Table describes how the PLOs are assessed. It contains the method of assessment, data sources with which these assessment processes are carried out, and how the data is collected

Program Learning Outcomes Assessment Table

COURSE PLO	Direct Assessment											
	436 CHEM-3	445 CHEM-3	446 CHEM-2	447 CHEM-3	491 CHEM-2	415 CHEM-4	424 CHEM-3	425 CHEM-2	438 CHEM-3	439 CHEM-3	448 CHEM-2	313 CHEM-3
K1						✓	✓					
K2								✓	✓			
S1					✓						✓	
S2	✓	✓										
S3					✓					✓		
S4			✓		✓							
V1		✓										✓
V2					✓			✓				
Indirect Assessment												

- *PLO student survey, in all courses, one time per semester*
- *Alumni survey,* Alumni, one time per year
- *Employment survey,* employer, one time each year if possible
- *SES and PES, one time per year, selected level of students.*
- CES Course Evaluation Survey, all students each semester.

Direct Assessment:

The direct assessment of the outcomes usually relies on the coursework and based a variety of tools that include combinations of final exam, midterm tests, quizzes, homework, laboratory works, assignments, practical, projects, presentations, etc. The assessment tools do however vary from course to course.

Indirect Assessment:

In order to address indirect assessment, different surveys are conducted:

Student Experience Survey (SES): is conducted mid-way through the second semester of the second year. The survey deals with the student's life at the institution including both major elements of the program in which they are enrolled and a number of general items relating to services and facilities. As for the SES the final question is intended as a summary question that might be used as a general quality indicator.

Course Evaluation Survey (CES): is conducted towards the end of a course. In this regard, formal written surveys targeting the program learning outcomes are solicited from students at the end of the BSc. of Chemistry program courses.

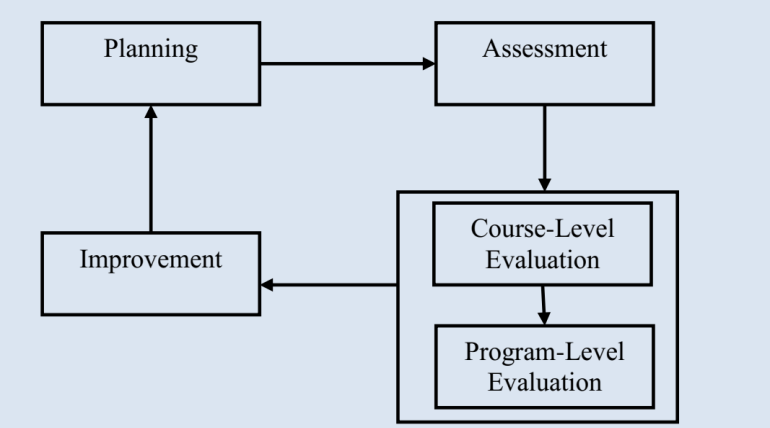
Program Evaluation Survey (PES): is filled in by the graduates at the end of their graduation semester. The graduate survey contains questions that directly target each one of the Program Learning Outcomes.

Alumni survey and employer survey are filled in by the alumni and employers respectively that directly target each one of the Program Learning Outcomes.

Other surveys may be uses as staff satisfaction survey, …..

Continuous improvement process:

The program objectives (which adopted from the department mission) establish a framework for program learning outcomes, curriculum development, and teaching methodology. A variety of assessment tools, as discussed, were used to ensure achievement of the program learning outcomes. At the end of each semester, the level of assessment and evaluation process is carried out, and the results of this assessment process are used to improve the educational process in order to achieve the targeted PLOs. The process is summarized below, and it depicts the assessment and evaluation process, as well as the closing of the loop on program learning outcomes. It should be noted that evaluation occurs at two levels: course and program. The evaluation results are used as feedback for improvement and are incorporated into planning to improve overall Program Learning attainment.



Schematic presentation for the followed Assessment and Evaluation Processes for closure of Planning Loop

Course-level Evaluation/Improvement:

At the end of each semester, the faculty member is expected to assess the achievement of course learning outcomes (CLOs) as mentioned in the course specifications, and then the achievements of the relevant program learning outcomes according to the CLOs/PLOs mapping. Then, he should prepare a course assessment report where he reports outcomes achievement obtained by direct. If the assessment reveals any weaknesses in a specific program learning outcome, the faculty should carefully analyze the results to identify the reason(s) of that weakness and propose corrective action(s) that can be implemented during the next semester to improve that specific outcome achievement. The impact of the proposed corrective actions on the outcome achievement shall be assessed at the end of the next semester. In the other hand, if the faculty reveals any strengths in specific student outcomes, he can specify the reason(s) and suggest action(s) to maintain that strength(s). These reports also take into account the feedback of students acquired through Course Evaluation surveys and the overall delivery of the course. In the subsequent semester, the suggested corrective measures are implemented which are the driving force for the continuous improvement process.

To this end, the Coordinator of the Quality Academic Accreditation at the Chemistry program collects the course portfolios and reports where the Assessment and Analysis committee reviews the course reports that include any suggestions and improvement by the faculty members. This process is held at the end of each semester. The Assessment and Analysis Committee meets to discuss comments and feedback from the students' attainment of outcomes, Student Course outcomes and Exit Surveys. The committee discusses areas of strength, areas for improvement, and decides on actions for improving program learning outcomes.

Program-level Evaluation/Improvement:

The Program council not only takes the course-level reports into account but also sheds light on the overall strengths and weaknesses of the Program and recommends the necessary actions to rectify such weaknesses. For this purpose, the council members meet from time to time to review and plan for the following semesters. During such meetings, the council also reviews feedbacks obtained from constituents and any other initiatives at the university or national level.

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	**Students, graduates, alumni, faculty Staff, administrative staff, employers,**	**Surveys**	**End of semesters**
Effectiveness of teaching	**Students, graduates, alumni, program leaders,**	**Surveys, visits**	**Mid and End of Academic Year**
Assessment	**Students, graduates, alumni, faculty Staff, program leaders, independent reviewers,**	**Surveys, interviews, visits, independent reviewers**	**End of semesters**
Learning resources	**Students, graduates, alumni, faculty Staff,**	**Surveys**	**End of Semester**
Effectiveness of teaching	**Students, graduates, alumni, program leaders,**	**Surveys, visits**	**End of semesters**

- *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 (____) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	Percentage of achieved indicators of the Program operational plan objectives		Percentage of performance indicators of the operational plan objectives of the program that achieved the targeted annual level to the total number of indicators targeted for these objectives in the same year	
2	KPI-P-02	Students› Evaluation of qual		Average of overall rating of final year students for the quality of learning experience	

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
		ity of learning experience in the program		in the program on a five-point scale in an annual survey	
3	KPI-P-03	Students› evaluation of the quality of the courses		Average students overall rating for the quality of courses on a five-point scale in an annual survey	
4	KPI-P-04	Completion rate		Proportion of undergraduate students who completed the program in minimum time in each cohort	
5	KPI-P-05	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	
.....	KPI-P-06	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)	
	KPI-P-07	Graduates' employability and enrolment in postgraduate programs		Percentage of graduates from the program: who within a year of graduation were a. employed. b. enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year.	
	KPI-P-08	Average number of students in the class		Average number of students per class (in each teaching session/activity: lecture, small group, tutorial, laboratory or clinical session)	
	KPI-P-09	Employers' evaluation of the program graduates' proficiency		Average of overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey	
	KPI-P-10	Students› satisfaction with the offered services		Average of students' satisfaction rate with the various services offered by the program (restaurants, transportation, sports facilities, academic advising, ...) on a five-point scale in an annual survey	
	KPI-P-11	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	
	KPI-P-12	Percentage of teaching staff distribution			
	KPI-P-13	Proportion of teaching staff leaving the program		Proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff.	
	KPI-P-14	Percentage of publications of faculty members		Percentage of full-time faculty members who published at least one research during the year to total faculty members in the program	
	KPI-P-15	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 to the total number of full-time or equivalent faculty members during the year)	
	KPI-P-16	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)	
	KPI-P-17	Satisfaction of beneficiaries with the learning resources		Average of beneficiaries' satisfaction rate with the adequacy and diversity of learning resources (references, journals, database es… etc.) on a five-point scale in an annual survey	

*including KPIs required by NCAAA

H. Specification Approval Data:

COUNCIL / COMMITTEE	**Chemistry Department Council** CHEMS2301
REFERENCE NO.	**CHEMS230105**
DATE	**11/1/2023G – 18/06/1444H**

I. References

1- https://units.imamu.edu.sa/colleges/science/agents/SiteAssets/Lists/List/AllItems/saudi-standard-classification-en.pdf

2- Chemistry Last PS