اعـتـماد
NCAAA

T3

2020

Program Specification

Program Name: Bachelor of Chemistry
Qualification Level : 6
Department: Chemistry Department
College: Science
Institution: Jouf University

VISION رؤيــة
2 30
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

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Content

A. Program Identification and General Information

<table>
<tr><td colspan="3">1. Program Main Location:</td></tr>
<tr><td colspan="3">1. Male section in the Main University Campus.</td></tr>
<tr><td colspan="3">2. Female section in the Laqayt campus.</td></tr>
<tr><td colspan="3">2. Branches Offering the Program:</td></tr>
<tr><td colspan="3">None</td></tr>
<tr><td colspan="3">3. Reasons for Establishing the Program:
(Economic, social, cultural, and technological reasons, and national needs and development, etc.)</td></tr>
<tr><td colspan="3">The Science of Chemistry plays a viable role in many fields that have been directly and vital to human life. That's why chemistry education can be benefices based on the following considerations:

1. There is a need for chemists to fill many vacant positions in fertilizers, petrochemicals, cement, water, petrol, etc… companies.
2. Qualified chemists are strongly needed to take their positions as valuable resources in relevant development to meet the economic growth of Kingdom of Saudi Arabia.
3. Many chemicals are involved in industrial processes that aim to develop certain types of products, as well as being a key component of many important industries such as detergents and other chemicals. The various chemical industries have a very high economic importance, as they work to weigh the balance of trade for the benefit of the state, increasing the proportion of exports at the expense of the proportion of imports.
4. Participation in the enrichment/increase of the value of raw materials and the mining wealth present in the kingdom in general and Aljouf region in specific that enables the achievement of higher development rate.
5. Reduce the reverse migration from Aljouf to the major cities for studying.

There is also increase in number of secondary school graduates in Sakaka and other neighboring cities, thus the program provide them a chance to become a chemist and contribute in the community.</td></tr>
<tr><td colspan="3">4. Total Credit Hours for Completing the Program: (134 credit hours)</td></tr>
<tr><td colspan="3">5. Professional Occupations/Jobs:
▪ Teaching assistant.
▪ Chemical analysis.
▪ Scientific research.
▪ Forensic Medicine.
▪ Petrochemical Industries.
▪ Plastic Industries.
▪ Cosmetic Industries.
▪ Water treatment Industries.
▪ Food Industries.
▪ Quality Assurance Units.
▪ Pharmaceutical Industries.</td></tr>
<tr><td colspan="3">6. Major Tracks/Pathways (if any): None</td></tr>
<tr><td>Major track/pathway</td><td>Credit hours
(For each track)</td><td>Professional Occupations/Jobs
(For each track)</td></tr>
<tr><td colspan="3">7. Intermediate Exit Points/Awarded Degree (if any):</td></tr>
<tr><td colspan="2">Intermediate exit points/awarded degree</td><td>Credit hours</td></tr>
<tr><td colspan="2">1. 1. Not Applicable</td><td></td></tr>
</table>

B. Mission, Goals, and Learning Outcomes

1. Program Mission:
Preparation of the scientific competencies in the field of Chemistry for community development and to solve environmental problems through applied research.
2. Program Goals:
- Developing the curriculum and courses to attain educational outcomes that meet the academic standards in the Kingdom.   - Developing the capabilities of the academic and technical staff to assist the educational process.   - Qualifying program students with advanced fundamental sciences in the field of chemistry.   - Conducting scientific research to keep up with scientific development in chemistry.   - Providing various services and activities in chemistry and its applications that benefit the community.
2. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

Program Mission Preparation of the scientific competencies in the field of Chemistry for community development and to solve environmental problems through applied research.	**College Mission** Providing excellent academic and research programs in basic sciences and their applications Through a stimulating environment for scientific research and creativity to provide the community with knowledge and scientific competencies that meet the requirements of development.		
	Providing Excellent Academic and research programs in basic sciences.	**Conduct Research**	**Provide services to the community**
High quality Chemistry education	√	√	√
Conduct Scientific Research		√	√
Community Services			√

3.

Program Mission Preparation of the scientific competencies in the field of Chemistry for community development and to solve environmental problems through applied research.	**University Mission** The mission of Jouf University is to provide distinguished Education and Research Outcomes to Develop the Community.		
	Educational outcomes	**Research outcomes**	**Community development**
High quality Chemistry education	√	√	√
Conduct Scientific Research		√	√
Community Services			√

The mission of Chemistry program focuses on excellence in education, community service and scientific research, which are aligned with the mission characteristics of Jouf University and College of Science.

Jouf University Goals	College of Science Goals	Chemistry Program Goals
O-1-1 Getting Institutional Accreditation. O-1-2 Application of academic accreditation standards in all university programs O-2-1 Improving academic and scientific performance to meet market and community needs. O-2-6 Development of communication skills, group and leader work and information technology for students according to their specializations. O-2-8 Completion of lab equipment for undergraduate students.	1. To provide educational programs with effective outputs that can satisfy the academic standards and the requirements of the labor market. 2. To provide the Kingdom with its needs of qualified staff in the fields of basic sciences and their applications.	1. Developing the curriculum and courses to attain educational outcomes that meet the academic standards in the Kingdom.
O 3-2 Publication of at least 40% of all faculty member in ISI journals or journals with high impact. O 3-3 Every faculty member needs to publish at least one scientific publication annually (such as scientific papers, translation and authoring a book). O-4-6 Supporting faculty members and employees to participate in social activities.	3. To enhance the research potential by providing advanced laboratories for various applied scientific research and studies through which the College can contribute to the service and development of the community. 4.To improve the performance of the administrative and technical staff in order to support the educational and research process.	2. Developing the capabilities of the academic and technical staff to assist the educational process.
O-3-4 Availability of diverse excellent postgraduate programs in the university. O-3-6 Availability of financial, technological requirements and infrastructure for undergraduate, postgraduate and faculty member research	5. To diversify the educational resources and to relate the academic concepts of students with the problems of the society and the surrounding environment.	3. Qualifying program students with advanced fundamental sciences in the field of chemistry.
O-3-1 Signing and activating at least one research partnership in every academic term that meets community needs O 3-5 Creating a research unit	6. To update academic plans and programs of the basic sciences in accordance with the relevant international standards	4. Conducting scientific research to keep up with scientific development in chemistry.

every academic year O-3-6 Availability of financial, technological requirements and infrastructure for undergraduate, postgraduate and faculty member research	7. To improve the academic and research performance through scholarships or partnerships with other national and international universities and sectors.	
O-4-1 Increasing community convincing of university role and mission in community service by 200%. O-4-2 Creating community programs that meet community expectations. O-4-3 Signing and activating at least one social partnership every academic term to achieve university mission and vision and to serve the community. O-4-4 Identifying community needs and expectations 28 . O-4-5 Creating interactive activities that attract and invest youth energy towards positive participation in the community	8. To establish postgraduate programs for various academic disciplines in the College.	5. Providing various services and activities in chemistry and its applications that benefit the community.

Alignment: Goals of both Jouf University and the College of Science are aligned in that they both adopt high academic standards, enhanced research that contribute to community service and development. Additionally, both of Jouf University and College of Science contribute effectively in building knowledge economy through linking the student's scientific concepts to the problems of society and the surrounding environment. Also, the creation of Postgraduate Programs in the various disciplines. Moreover, the goals of Chemistry program reflect the goals of the College of Science completely. In parallel with the goals of the National Transformation Program 2020 and Vision 2030.

3. Graduate Attributes:

1. **Knowledge and Understanding**: Possessing in-depth knowledge and understanding of various disciplines of chemistry like analytical chemistry, physical chemistry, inorganic chemistry, and organic chemistry.
2. **Problem Solving Skills:** Having the ability to critically analyze and apply the knowledge and basic principles of various disciplines of chemistry in solving problems and making decisions during daily chemistry practice.
3. **Research Skills:** Practicing research techniques to solve problems in the various disciplines of chemistry.
4. **Practical and Physical Skills:** Performing complex practical experiments in the field of chemistry, taking into consideration the proper usage of available resources and application of safety measures.
5. **Communication Skills:** Communicating effectively with chemistry and chemical communities and society through writing effective reports, making effective presentations.
6. **Information Technology Skills:** Having the ability to use a variety of information technology tools and applications to support Chemistry related research.
7. **Ethics:** Demonstrating integrity, professional and academic ethics and commitment to citizenship principles while employing in chemical fields.
8. **Teamwork:** Work professionally in teams, provide leadership, creating a conducive and

	inclusive environment.
9.	**Autonomy and Personal Development:** Mastering self- learning skills required for life-long learning and professional development in the various disciplines of chemistry.

5.Program learning Outcomes*

Knowledge and Understanding	
	By the end of the program, student will be able to:
K1	Demonstrate the main concepts and chemical laws in all studied chemistry branches
K2	Outline the scientific principles in the subfields of chemistry (analytical, inorganic, organic and physical), and apply these principles to interact with industrial fields
K3	Discuss the major types of chemical reactions, their characteristics, and mechanisms as well as their kinetics
K4	Explain, integrate and apply the relevant knowledge and theories in basic sciences and other disciplines and professional fields

Skills	
	By the end of the program, student will be able to:
S1	Classify the chemical compounds and identify their properties
S2	Compare the results to predict and rationalize properties, mechanisms and patterns of reactivity
S3	Formulate processes, relationships and techniques related to different chemistry branches.
S4	Summarize information from library, online and literature resources that will support the solving of chemical and research problems.
S5	Evaluate, develop and conduct Chemistry experiments or test hypotheses, analyze and interpret data and use scientific judgment to address conclusions and make a criticism.

Values	
	By the end of the program, student will be able to:
V1	Conduct laboratory experiments safely, evaluate the potential impact of chemistry that may have on society, health and the environment
V2	Enhance students self and long life-learning using information technology, risk management, organization of time, and reviewing of a quality control processes
V3	Collaborate effectively as part of a team, recognizing and respecting the viewpoints of others and developing understanding and awareness of leadership styles and their impacts upon projects.

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

C. Curriculum
1. Curriculum Structure

Program Structure	**Required/ Elective**	**No. of courses**	**Credit Hours**	**Percentage**
Institution Requirements	Required	5	10	7.46 %
	Elective	3	6	4.48 %
College Requirements	Required	9	27	20.15 %
	Elective	0	0	0.0%
Program Requirements	Required	32	75	55.97 %
	Elective	5	10	7.46 %
Capstone Course/Project	Required	1	3	2.24 %
Field Experience/ Internship	Required	1	3	2.24 %
Others	--	0	0	0.00 %

| | | Total | | | 56 | 134 | 100 |

* Add a table for each track (if any)

2. Program Study Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Level 1	ENGL 103	English 1	Required	--	3	C
	MTH 101	Introductory Mathematics	Required	--	3	C
	BIO 101	Principles of biology 1	Required	--	3	C
	ISL 101	Fundamental of Islamic Culture	Required	--	2	U
	CIS 101	Computer Skills	Required	--	3	C
	EDU 101	University Life Skills	Required	--	2	U
Level 2	ENGL 104	English 2	Required	ENGL 101	3	C
	PHYS 101	General Physics 1	Required	--	4	C
	MTH 102	Differential Calculus	Required	MTH 101	3	C
	CHM 101	Chemistry general 1	Required	--	4	D
	ARAB 100	Language Skills	Required	--	2	U
	ISL 100	Studies in the biography of the prophet	Required	--	2	U
Level 3	ARAB 102	Editing	Required	ARAB 100	2	U
	CHM 202	Chemistry general 2	Required	CHM 101	2	D
	CHM 241	Principles of organic chemistry 1	Required	CHM 101	2	D
	CHM 231	Chemical thermodynamic	Required	CHM 101	2	D
	CHM 221	Chemistry of main groups elements	Required	CHM 101	2	D
	MTH 203	Integral Calculus	Required	MTH 102	3	C
Level 4	CHM 242	Principles of Organic Chemistry 2	Required	CHM 241	2	D
	CHM 222	Practical Inorganic Chemistry 1	Required	CHM 221	2	D
	CHM 251	Volumetric and gravimetric analysis	Required	CHM 101	4	D
	CHM 232	Phase rule and solutions	Required	CHM 231	2	D
	CHM 243	Practical organic chemistry 1	Required	CHM 241	2	D
	CHM 233	Principles of quantum chemistry	Required	CHM 202, MTH 203	2	D
Level 5	CHM 321	Transition Elements and coordination Chemistry	Required	CHM 221	3	D
	CHM 341	Heterocyclic chemistry	Required	CHM 242	2	D
	CHM 331	Electro chemistry	Required	CHM 231	2	D
	CHM 351	Instrumental analysis methods	Required	CHM 251	4	D
	CHM 332	Practical physical chemistry 1	Required	CHM 232	2	D
	CHM 333	Chemistry of solid state	Required	CHM 231, CHM 232	2	D
	ISL	University elective course	Required		2	U
Level 6	CHM 334	Chemical kinetics	Required	CHM 231	2	D
	CHM 342	Biochemistry	Required	CHM 242	3	D
	CHM 352	Separation methods and chromatography	Required	CHM 351	3	D
	CHM 343	Polymers and petrochemicals	Required	CHM 341	2	D
	CHM 344	Organic reactions mechanism	Required	CHM 341	2	D

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
	CHM	Department Elective course	Required		2	D
	EDU 102	University elective course	Required	EDU 101	2	U
Level 7	CHM 421	Organometallic chemistry	Required	CHM 321	2	D
	CHM 431	Surface and catalysis chemistry	Required	CHM 334	2	D
	CHM 441	Practical organic chemistry 2	Required	CHM 343	2	D
	CHM 451	Environmental chemistry	Required	CHM 352	3	D
	CHM 498	Field training	Required	90 credit hours must be completed	3	D
	CHM 422	Lanthanides and actinides chemistry	Required	CHM 321	2	D
	CHM	Department Elective course	Required	---	2	D
	CHM	Department Elective course	Required	---	2	D
Level 8	CHM 424	Spectroscopy of inorganic compounds	Required	CHM 421	2	D
	CHM 425	Practical inorganic chemistry 2	Required	CHM 421	2	D
	CHM 434	Practical physical chemistry 2	Required	CHM 431	2	D
	CHM 442	Organic compounds spectroscopy	Required	CHM 341	3	D
	CHM 499	Research project	Required	100 credit hours must be completed	3	D
	CHM 453	Medical and industrial analysis	Required	CHM 451	2	D
	CHM	Department Elective course	Required	---	2	D
	CHM	Department Elective course	Required	---	2	D

* Include additional levels if needed
** Add a table for each track (if any)

Program Elective Courses (10) Hours

SN	Course Code	Course Name	Hours				Prior requirements	Level
			Theoretical	Practical	Training/Exercises	Accredited		
1.	CHM335	Corrosion	1	2	0	2	CHM 331	6
2.	CHM322	Inorganic reaction mechanism	2	0	0	2	CHM 321	
3.	CHM345	Physical organic chemistry	2	0	0	2	CHM 341	
4.	CHM346	Natural products	1	2	0	2	CHM 341	
5.	CHM482	Nano-chemistry and application	1	2	0	2	90 credit hours must be completed	7
6.	CHM486	Green chemistry	2	0	0	2	90 credit hours must be compl1eted	
7.	CHM423	Photochemistry	2	0	0	2	CHM 321	
8.	CHM452	Advance subjects in	1	2	0	2	CHM 352	

No.	Code	Course					Prerequisite	
		analytical chemistry						
9.	CHM433	Physical chemistry of polymers	1	2	0	2	CHM 343, CHM 334	
10.	CHM443	Advanced practical applications in organic chemistry	0	4	0	2	CHM 342	
11.	CHM488	Renewable energy	2	0	0	2	90 credit hours must be completed	
12.	CHM435	Advanced quantum chemistry	2	0	0	2	CHM 431	8
13.	CHM426	Advanced topics in inorganic chemistry	1	2	0	2	CHM 421	
14.	CHM427	Nuclear and radio chemistry	2	0	0	2	CHM 421	
15.	CHM489	Industrial chemistry	2	0	0	2	90 credit hours must be completed	

3. Course Specifications

Insert hyperlink for all course specifications using NCAAA template

https://drive.google.com/drive/folders/1x0SGhRV9hL8o5rvD0O7pvJJGkQUZw2SI?usp=share_link

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											
	Knowledge and Understanding				Skills					Values		
	K1	K2	K3	K4	S1	S2	S3	S4	S5	V1	V2	V3
CHM 101	I				I				I	I		
CHM 202	I				I			I				
CHM 241	I		I		I							
CHM 231	I	I						I				
CHM 221	I				I			I	I			
CHM 242		P	P		P						I	
CHM 222			P		P					P		I
CHM 251		P						P	P	P		
CHM 232	P	P						P				
CHM 243			P		I			P		P		
CHM 233	P	P						P				
CHM 321	P	P			P							I
CHM 341		P	P		I						I	
CHM 331		P		I				P				
CHM 351		P			I			P		P		
CHM 332				I		P		P				I
CHM 333	P	P						P				
CHM 334	M		M					M				
CHM 342		M						M	M			P
CHM 352		M			P			M		M		

Course												
CHM 343				P	•		M	M			M	
CHM 344		M	M			P	M					
CHM 421	M		M		M			M				
CHM 431		M		P				M				
CHM 441			M			P			M	M		
CHM 451		M					M			M		
CHM 498			M	P	M	P		M	M		p	P
CHM 422	M	M						M				
CHM 424	M	M					M	M				
CHM 425				P			M		M			M
CHM 434				P			M		M			M
CHM 442		M		P		P	M					
CHM 499				P	M		M	M	M	M		M
CHM 453		M					M			M		
CHM 335		M		M					M	M		
CHM 322				M			M				M	
CHM 345			M	M				M			M	
CHM 346				M		M			M	M		
CHM 482				M			M	M	M			
CHM 486		M		M				M				
CHM 423		M	M				M			M		
CHM 452		M				M			M	M		
CHM 433	M			M			M		M			
CHM 443			M			M			M			
CHM 488				M			M	M				
CHM 435	M	M						M			M	
CHM 426		M		M			M		M			
CHM 427		M		M			M					
CHM 489		M		M				M				

* Add a table for each track (if any)

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5. Teaching and learning strategies to achieve program learning outcomes

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

Domain	Teaching and learning strategies
Knowledge	● Active Learning - Interactive lectures - Problems solving - Self-learning - Class discussion[Rubrics-based] - Brain storming ● Blackboard activities ● Characterization Techniques ● Seminars[Rubrics-based] ● Procedural skills teaching ● Audiovisual materials

	● Individual and group duties and assignments ● Mentoring

Skill	● Experimental synthesis
	● Laboratory safety
	● Practical performance
	● High Learning
	  - Asking questions
	  - Conclusions
	  - Prove information and evaluation
	● Active Learning
	  - Interactive lectures
	  - Problems solving
	  - Self-learning
	  - Collaborative learning
	  - Class discussion[Rubrics-based]
	  - Investigation
	  - Brain storming
	● Presentations

Values	● Lecture
	● Seminars[Rubrics-based]
	● Projects[Rubrics-based]
	● Individual and group duties and assignments
	● Active Learning
	  - Interactive lectures
	  - Self-learning
	  - Collaborative learning
	  - Class discussion[Rubrics-based]

Teaching and learning strategies are well planned and identified according to each course learning outcomes, which are aligned with PLOs. Further, these teaching strategies are chosen based on the domains of learning. These includes active learning strategies such as

- *Class discussion*
- *Projects and Seminars*
- *Self-learning / Brain Storming*
- *Reports and Oral Presentation*
- *Interactive Lectures*

These active learning strategies are practiced in the **Chemistry program** and their usability depends on the requirements in the Chemistry program courses.

Instructional strategies aimed at improving students' thinking include interactive learning in the form of class discussion and seminars. These use brainstorming, which encourages students to ask questions, discuss ideas, but also develop their own problem-solving. This will encourage students to participate in competitions which are of great importance in the student life. Other strategies include completing projects, writing reports, and giving presentations.

Presentation and writing reports are chosen as strategies for developing communication skills. Group projects are commissioned to develop interpersonal skills and responsibility.

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.

Contribution of Extra-curricular Activities to the Achievement of PLOs

Extracurricular activities complement the academic curriculum by refining and developing personal skills and behaviors, hence, enhancing students' experience. The engagement of students in extracurricular activities provides positive impacts on their achievement and employment.

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 high school and college students join sports programs every year. Being a member of your school's sports team can be a rewarding and enriching experience. Playing sports teaches you the importance of teamwork, leadership and working hard to achieve your 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 that 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. **The following table summarizes some of the extra-curricular activities offered to the students in the academic year 1442 and their impact on the chemistry program learning outcomes.**

Extra-curricular Activities	Chemistry Program learning outcomes											
	K1	K2	K3	K4	S1	S2	S3	$4	S5	V1	V2	V3
Professional training												
Infrared spectroscopy training course	√	√		√	√	√	√		√		√	
TEM and SEM spectroscopy Training courses	√	√		√	√	√	√		√		√	

Activity													
3- A trip to Aramco and cements companies Modern methods of water treatment (awareness Campaign)			√			√	√		√	√			
General scientific lectures	√	√	√	√		√				√			
Student Scientific Forum (every year)							√	√	√				√
Arab Chemistry Week Forum (every year)			√	√			√		√				√
Community Service													
Visiting health centers							√		√	√	√		
High school invitations to visit college of science labs	√	√					√		√	√	√		
Sports													
- Participation in the College and University sport teams. **- Attending sport events.**												√	

6. Assessment Methods for program learning outcomes.

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

The chemistry program uses different methods to assess and evaluate the extent to which its program learning outcomes are being attained. These methods are used to gather the data which is necessary for the assessments. Evaluation, in the form of interpreting the data, is then carried out in order 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 are:

1. Assessment methods for program learning outcomes can be direct assessment usually relies on the course work or indirect assessment methods (Course evaluation survey, Students survey on evaluating the chemistry program, Alumni survey, Employers 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 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.

Direct Assessment Methods

Domain	Assessment Methods
Knowledge	● Theory paper exams ● Quizzes

	● Class participation[Rubrics-based] ● Discussions[Rubrics-based]. ● Home work ● Mid-term and final exams
Skill	● Theory paper exams ● Class participation[Rubrics-based] ● Discussions[Rubrics-based] ● Seminar evaluation [Rubrics-based] ● Assignment ● Quizzes ● Practical Exams ● Mid-term and final exams
Values	● Seminar evaluation [Rubrics-based] ● Discussions[Rubrics-based] ● Practical tests ● Projects[Rubrics-based] ● Continuous evaluations ● Reports and surveys[Rubrics-based] ● Oral presentation[Rubrics-based]

Indirect Assessment Methods:

1	Course Evaluation Survey
2	Chemistry students program survey on their experiences in the university
3	Chemistry students survey on evaluating the chemistry program
4	Chemistry students survey on evaluating the digital library and its services
5	Chemistry students satisfaction survey on the quality of academic advising, psychological, and professional service
6	Chemistry students survey on evaluating chemistry program mission
7	Chemistry students survey on evaluating chemistry program facilities and special equipment
8	Chemistry student's opinions on field experience
9	Alumni survey
10	Employers survey

D. Student Admission and Support:

1. Student Admission Requirements

A student must meet the following requirements for admission to the university:

* The student must submit an application of enrollment to the deanship of admission and registration (electronic application processes apply).
* Deadlines are announced in each academic year.
* Hold a high school or equivalent degree from a college in Saudi Arabia or an equivalent institute out of the Kingdom.
* The high school degree must have been issued in the last five years for full-time students. The University Rector has authority to give exception to this rule on case-to-case basis.
* A student must be of good conduct and behavior.
* he student must pass any additional test or interview that might be required by the university.
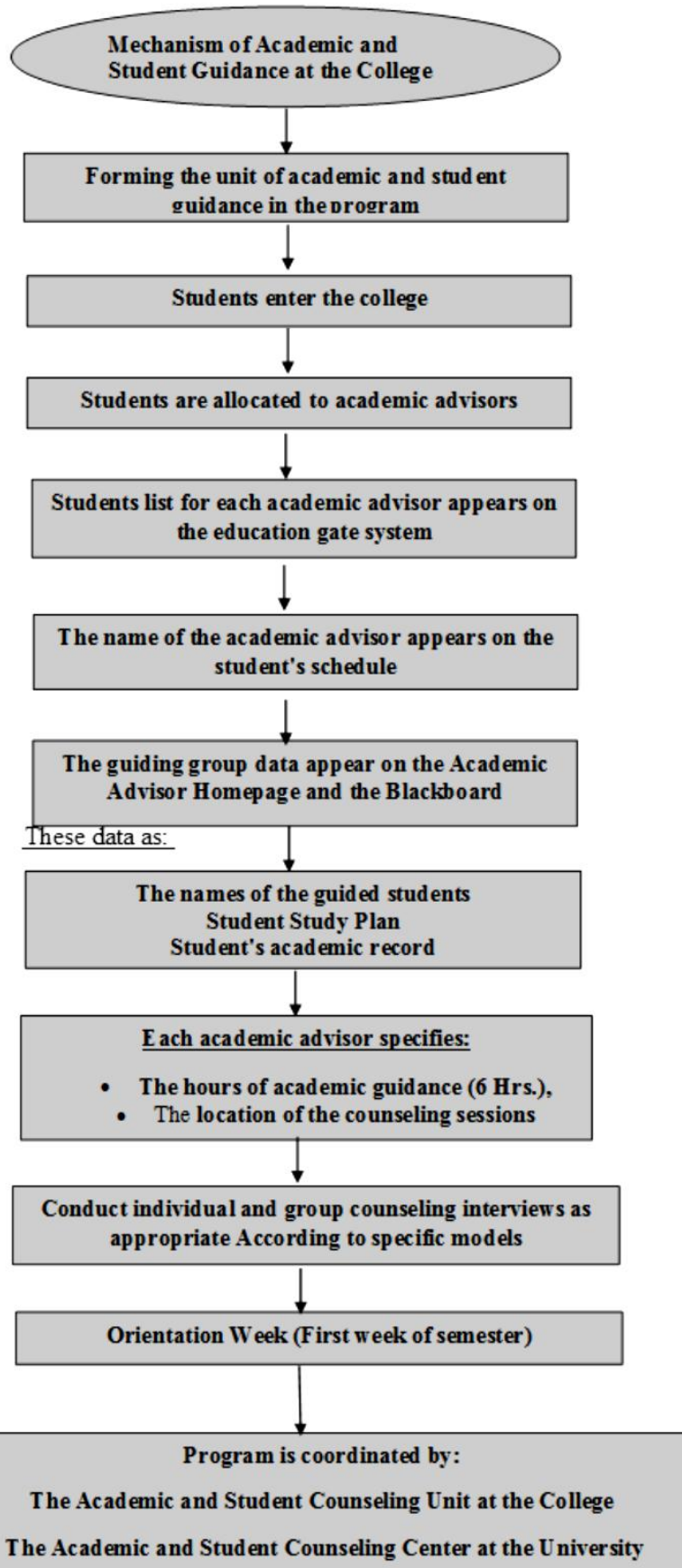* The student must be medically fit for studying at the university.

- In case of student working in a government or private sector, he must obtain permission for study from his employer.
- The student should satisfy any other conditions determined by the University Council during the application assessment.
- A student who had been dismissed from Jouf University or any other university is not eligible for admission.
- Those who already had obtained a Bachelor degree or its equivalent shall not be admitted to obtain another Bachelor degree. The University Rector has the right for exception to this rule on case-to-case basis.
- A student who is already registered for an academic degree in Jouf University or any other university is not allowed to register for another degree.

These guidelines are based upon and consistent with the general rules of the Saudi Ministry of Higher Education and are available on the Deanship of Admissions and Registration website at: http://dar.ju.edu.sa/forms/list_laws_E.pdf.

2. Guidance and Orientation Programs for New Students

- Committees are formed to receive new students to provide them with all information about the program, distribute the study plan, and familiarize students with the importance of reference to the rules and regulations during their academic year and the need to communicate with the academic advisor.

- At the beginning of new academic year, the Academic Advising Unit in cooperation with the Students Activities committee at the college of Science, Jouf University organizes a ceremony for the new students.

- The academic advising unit presents benefit from the various committees and units in the College and the available possibilities. It also explains the keenness of the College and the University from the first day of study to provide all services to students from the regularity of lectures and the preparation of classrooms, libraries and laboratories. As well as the outstanding participation in the student activities offered by the College and the University in all fields of sports, scientific and cultural.

- The supervisor of the Academic Extension Unit also explains some of the student problems resulting from the absence, which lead to deprivation, academic separation, and the possibility of benefiting and interacting with their colleagues at the higher levels.

- The supervisor of Academic Affairs Unit, presents the scientific departments of the college as well as the educational programs offered by the college, the various units and committees in the college and the extent of student benefit from them. The coordinator of the e-learning unit displays how to use the e-learning system "Blackboard" and also presents an illustration of how to use the university's electronic portal. The Chairman of the Student Activities Committee presents pictures of the activities of the College last year and encourages students to participate in the sports and cultural activities organized by the college of Science and the University. The Chairman of the Innovation Committee also encourages students to participate and present innovative ideas and explains to them the interest of the college administration in the innovations of the students and usually presents to them a number of innovations made by the students and registered with the help of the college and the university.

- Finally, the ceremony ends with the opening of the dialogue between faculty members and new students for the mutual recognition between the two sides. At the end of the ceremony, some brochures are distributed, which are prepared by the Center for Academic and Student Counseling at the University and distributed pamphlets for the various academic programs of the College of Science.

```
        ┌─────────────────────────────────┐
        │   Mechanism of Academic and     │
        │   Student Guidance at the College│
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  Forming the unit of academic   │
        │  and student guidance in the    │
        │  program                        │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │     Students enter the college  │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  Students are allocated to      │
        │  academic advisors              │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  Students list for each academic│
        │  advisor appears on the         │
        │  education gate system          │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  The name of the academic       │
        │  advisor appears on the         │
        │  student's schedule             │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  The guiding group data appear  │
        │  on the Academic Advisor        │
        │  Homepage and the Blackboard    │
        └─────────────────────────────────┘
```

These data as:

```
        ┌─────────────────────────────────┐
        │  The names of the guided        │
        │  students                       │
        │  Student Study Plan             │
        │  Student's academic record      │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  Each academic advisor specifies:│
        │                                 │
        │  • The hours of academic        │
        │    guidance (6 Hrs.),           │
        │   • The location of the         │
        │     counseling sessions         │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  Conduct individual and group   │
        │  counseling interviews as       │
        │  appropriate According to       │
        │  specific models                │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │  Orientation Week (First week   │
        │  of semester)                   │
        └─────────────────────────────────┘
                        │
                        ▼
        ┌─────────────────────────────────┐
        │     Program is coordinated by:  │
        │                                 │
        │  The Academic and Student       │
        │  Counseling Unit at the College │
        │                                 │
        │  The Academic and Student       │
        │  Counseling Center at the       │
        │  University                     │
        └─────────────────────────────────┘
```

3. Student Counseling Services
(academic, career, psychological and social)

- Committees are formed to receive new students to provide students with all information about the program and distribution of the study plan to students and to familiarize students with the importance of reference to the rules and regulations during their academic course and the need to communicate with the academic advisor.
- All students of the program are distributed to the academic mentors so that there is a guide for each group of students and a maximum of 10 students if possible. This depends on the number of faculty members in the program
- Each faculty member prepares a special file for each of the students assigned to supervise them the faculty members set the schedules of office hours and guidance and communication with them on the doors of their offices and are announced to students through the system Blackboard also where the professor of the course is 10 hours per week for the hours of guidance and office
- Each faculty member will conduct periodic training sessions for students and document them through the guidance models (individual guidance or group guidance) to discuss obstacles facing academic and non- academic problems and try to overcome these obstacles and encourage them to attend lectures and exercises

Academic Advising Tasks:

A departmental faculty member is assigned for each student as long as he is staying with the department as a student. The academic advisor advises the student until his graduation. The advisor monitors the student's performance, rectifies any errors and observed deficiencies, guides the student in preparation of the graduation plan, helps to select the elective courses and a suitable topic for senior design project to meet his graduation plan. Other responsibilities of the academic advisors may include:

1. Monitoring the absence of the student: Monitoring the absence of students from the functions of the professor of the course, and the academic advisor to follow up cases referred to him by the coordinator's guidance in accordance with the plan
2. Coaching about students add and drop of courses procedures.
3. Providing students with direct and indirect access to the expertise of college members outside the classroom.
4. Advise the students of their career opportunities.

4. Special Support
(low achievers, disabled, gifted and talented)

Based on the system of care for the disabled issued by the Royal Decree No. (M / 37) dated 23/9/1421 AH, and in the belief of Jouf University that education is a legitimate right for all spectrums of society, male and female alike, has been formed a unit with special needs, as one of the units of the Deanship Students' Affairs is concerned with overcoming all the difficulties and challenges faced by the university students.

Low achievers

- College evaluating that 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 that 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. Teaching and Administrative Staff
1.Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements/Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	Chemistry	▪Analytical ▪Organic ▪Inorganic ▪Physical	Expert in subject, confidence, Good speaker and listener, motivation, Academic ranking	7	4	11
Associate Professors	Chemistry	▪Analytical ▪Organic ▪Inorganic ▪Physical	Expert in subject, confidence, Good speaker and listener, motivation, Academic ranking	11	7	18
Assistant Professors	Chemistry	▪Analytical ▪Organic ▪Inorganic ▪Physical	Ability to work well with a range of people, organization, teamwork, excellent written and verbal communication…	6	20	26
Lecturers	Chemistry	▪Analytical ▪Organic ▪Inorganic ▪Physical	Good organizational, ability to manage groups, flexibility and creativity….	5	7	12
Teaching Assistants	Chemistry	▪Organic ▪Inorganic	Good organizational, ability to manage groups, flexibility and creativity….	2	6	8
Technicians and Laboratory Assistants	Chemistry	Analytical	Meticulous attention to details, excellent written and oral communication, good team working…	6	4	10
Administrative and Supportive Staff	Administrative	Administrative	Adept in Technology, verbal& written communication, organization, time management, strategic planning...	2	2	4
Others (specify)	-	-	-	-	-	-

2. Professional Development

2.1 Orientation of New Teaching Staff
Describe briefly the process used for orientation of new, visiting and part-time teaching staff

• The objectives of Orientation Program are related to improving work performance, enhancing career prospects, increasing the capacity for learning, encouraging participation in, and commitment to, lifelong learning and being adaptable to, and prepared for, changes.

• Expected outcome: By the end of the program, participants will be aware with the college of science teaching system, quality system, administration system, research and continuous development concepts.

• The new **Teaching Staff** is encouraged to attend workshops on effective teaching and professional development.

• Orientation program is conducted for the new college members including all aspects about their rights and duties.

Orientation Program management

• The agenda of the program is prepared by the head of the chemistry program and approved by the college Vice-dean

• The program is generally structured and is presented in the first two weeks of each year with minor changes.

• Program announced through the routine way for announcing chemistry program activities

The structured program agenda includes:

• **Program governance:**
  ➢ Introduction to the college of science and chemistry program including the Organization structure of chemistry program
  ➢ The Mission, Vision and Strategic Goals of both the college of science and chemistry department
  ➢ Administrative system

• **chemistry Program**
  ➢ The curriculum
  ➢ Instructional methods
  ➢ Assessment methods
  ➢ Academic Regulations & Policies
  ➢ Academic counseling

• **Quality Assurance**
  ➢ Academic accreditation
  ➢ Quality management system

• **Research opportunities**

• **Community service opportunities**

• **Facilities**
  ➢ JU Academic Gate
  ➢ Saudi Digital library
  ➢ Black board

• **Staff affairs**

  ➢ Code of Conduct
  ➢ Job description and roles
  ➢ The Continuous Professional Development plan

> ➢ Staff Portfolio and annual appraisal
> ➢ Health and Safety regulations

• Attendance of the participants is recorded on the attendance sheet.

• The new staff is invited to voluntarily join on the functional committees of the college of science.

• A questionnaire for feedback from the participants is distributed with the materials in the beginning of the program and collected at the end of the day for further analysis by the quality assurance committee.

2.2 Professional Development for Teaching Staff

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

Continuing professional development is the maintenance, enhancement and continuous improvement of knowledge, skills and abilities.

• **The objectives of chemistry department to professional development for teaching staff are related to followings:**
  - ➢ Improving work performance;
  - ➢ Enhancing career prospects;
  - ➢ Increasing the capacity for learning;
  - ➢ Encouraging participation in, and commitment to, lifelong learning and being adaptable to, and prepared for, changes.
  - • **Planning at the college level:**
  - ➢ planning document that examines staff members **professional development** current needs
  - • **Monitoring professional development**

The purpose of the annual professional review is for the faculty and staff to:
  - ➢ Review progress against agreed objectives set the previous year and evaluate the outcome of **professional development** on the staff experience
  - ➢ Set objectives for the forthcoming academic year to achieve the College's level CPD Plans.
  - ➢ Identify professional and personal development needs.

The college units (quality assurance, e-learning, academic supervision) organize and train the teaching members about the following subjects.

Regarding college:
  - ▪ Advanced black board.
  - ▪ Complete and write new template for course specification and reports.
  - ▪ Advanced workshop in student academic supervision.

The university skills development center, academic supervision unit, and deanship of quality assurance organize and makes workshop and training for teaching members about the following topics or and skills

Regarding university:
  - ▪ Achievement tests in the university stage.
  - ▪ Modern trends in the design of courses.
  - ▪ Funding for scientific research and scholarship
  - ▪ Active learning strategies
  - ▪ Plagiarism and scientific documentation of research.
  - ▪ Effective teaching strategies
  - ▪ Skills in preparing exams
  - ▪ Construction and managing the research team.
  - ▪ EndNote X7
  - ▪ Personal strategic planning
  - ▪ Development of Leadership Skills

- ▪ Follow-up and implementation of the strategic plan

Staff members are motivated to excel through a promotion scheme that takes into account performance in teaching, research, and services. The university faculty promotion guidelines follow international standards in the profession. Moreover, many university awards exist for outstanding faculty performance.

- **Other professional development including knowledge of research**

Staff members utilize the full range of opportunities offered by Jouf University for professional development. The university provides funds to support scientific research through a variety of research grant schemes managed by the Deanship for Scientific Research (DSR). The Staff members are also encouraged to go abroad (USA, UK, AUS…) for higher studies and the University facilitates by granting study (scholarship).

The Staff members are encouraged to give scientific lectures in all chemistry fields (physical, organic, inorganic, analytical) as a part of increasing knowledge and professional development.

F. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

- • The faculty and teaching staff for planning and acquisition of textbooks, references and other resource material including electronic and web-based resources are doing the following process circular is sent to the head of chemistry departments to raise their needs of textbook, references and other resource material including electronic and web based resources.
- • Each head of department assigns a member of teaching staff and to fill out forms to be approved by the dean and sent to Deanship for Library for further process.
- • Students evaluates the adequacy of text books, reference or any other resources through the surveys of satisfactions after the courses and at the 3rd year and on graduation. Also, the place is open for any complaint of students to be raised directly to the Vice-Deans and the Dean of the Faculty
- • For textbooks acquisition and approval, the Circular is sent to the heads of the chemistry departments to raise their needs of textbook, references and other resource material including electronic and web-based resources.

• Each head of department assigns a member of teaching staff and to fill out forms to be approved by the dean and sent to Deanship for Library for further process.

2. Facilities and Equipment

(Library, laboratories, medical facilities, classrooms, etc.).

Offices:

Offices for faculty members at Jouf University are equipped with computers, printers and scanners. Other IT equipment such as laptops can be provided at the request of the staff member and subject to approval from the department head and IT director. Offices of chemistry program instructors are located on the third floor of the College of Science building. The offices are connected through both wired and wireless network. Each Faculty member has a desktop computer that is equipped with all software programs necessary for teaching and research work. Schedule of instructors is posted beside office door, which

includes office hours, class's times and locations.

Communications between students and faculty members is usually done via Blackboard (BB) web portal. Blackboard is a very powerful tool that allows posting course materials, announcements, assignments, discussion forums and virtual classes.

Classrooms:

The chemistry department has 3 dedicated and 12 shared classrooms. Details of these classrooms are given in Table 2-1 and 2-2 respectively.

Table 2-1. Dedicated classrooms for chemistry department.

S.No.	Room No.	Seating Capacity
1	F60	50
2	F61	50
3	F65	50

Table 2-2. Shared classrooms in College of Science

S.No.	Room No.	Seating Capacity
1	F52	60
2	F55	55
3	F56	50
4	F63	60
5	F66	50
6	٢٠٢و	54
7	٢٠٨و	62
8	٢٠٩و	54
9	٢١٠و	54
10	٢١٤و	54
11	٢٢١و	54
12	٢٢٤و	60

Laboratory facilities:

Chemistry department has following well equipped dedicated laboratories.

1.G90

2.G121

3.G122

4.G123

5.G126

6.117B

7.120B

Students can use these laboratories during their laboratory courses scheduled there. They can also use the laboratory with permission of the instructor at any other time.

Computing Resources:

Availability and accessibility to electronic resources help enhance the quality of the courses content due to the continuous accessibility to updated information. In addition to the computing resources available in laboratories, students of the chemistry department have been provided with internet access through WiFi all across the campus. The university has

also subscribed to most of the international journals and publishers, so students are able to download recent research papers in their field of study. Central library is also equipped with 40 computers connected to internet for students use. The library also has 6 photocopying machines and a printer for students. The library is open on all weekdays from 8 am to 4 pm.

Library Services:

The central library of the university holds over 23,000 book titles in both Arabic and English, in addition to numerous journal subscriptions, government publications, dissertations, databases, and manuscripts. Students can search for books online and can issue them for personal use. It has seating capacity of over 200, which includes private study areas and meeting rooms.

The library is equipped with photocopiers, printers and computers with access to the internet to facilitate searching the library database. The library subscribes to electronic database websites of a number of publishers and e-journals. Faculty members have access to these sites, where they may download research papers and other materials.

All the study plan texts book is available in the college library. The instructor (by personal initiative) has to be ensuring that the books are updated and covers all the topics in syllabus. By the end of the academic year, each faculty member provides recommendations for course books in course report and send to the department for approval. After approval by the department, the list of books and references are submitted to the college library committee to start the processes of purchasing. The faculty member regularly advises students on the reference material to be kept in the library and the importance of access to the university database which allows access to most of the global publishing data bases.

Surveying of faculty should be conducted to evaluate the available resources in the library from quality and quantity. In addition, students surveying should be performed to evaluate the available resources in the library from quality and quantity point of view.

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

Safety, environmental conservation and hazardous waste disposal procedures are managed by the policy work environment and safety regulations, which defines all hazardous materials and how to manage them with defined roles of all the involved users such as students, staff, employees and etc. (https://drive.google.com/drive/u/2/folders/1qEN0b3e6u--Otqvoq8LMB8ay6hn4AeDg)

Generally, the University requires laboratory supervisors and research project leaders to take responsibilities to control risk. Laboratory worker has responsibility to observe the basic safety rules that have been established to help in creating a safe and healthy working environment.

Safety Guideline has been constructed to provide practical guidance to persons-in-charge and other laboratory users on how to implement health and safety measures as required under the safety policies.

- The Departmental Committee of Facilities and Laboratories are constructed in the beginning of each academic year.
- The issues regarding Health, Safety and Environment are among the responsibilities of that committee.
- The above-mentioned committees meet regularly as required for discussing health and safety matters as well as environmental protection issues, and for promoting the awareness of those issues among staff and students within the department.

- This committee is responsible for releasing a booklet in each laboratory for maintaining safety and health issues.
- Departmental head should revise all course plans and confirm that the first topic in each practical course will cover safety issues carefully and encouraging teachers, technicians and students to acquire the principles necessary to correctly handle the chemicals and essential knowledge of emergencies in laboratories.
- According to the University's Laboratory Safety Management Policy, the Head of Department should also appoint a staff member to be in charge of each individual laboratory. The person-in charge should:
  - Assess risks of work activities, work environment and usage of chemicals/tools under their jurisdiction.
  - inspect the laboratory to identify and evaluate workplace hazards and unsafe work
  - practices
  - inform users of the laboratory about health and safety matters
  - establish and maintain good health and safety practices
  - follow established guidelines and assist others to meet safety requirements
  - report promptly on all accidents/incidents and maintain an up-to-date record of documents as required by legislation and by the University.

G. Program Management and Regulations

1. Program Management
1.1 Program Structure
(including boards, councils, units, committees, etc.)

The Organization Structure of Chemistry Program
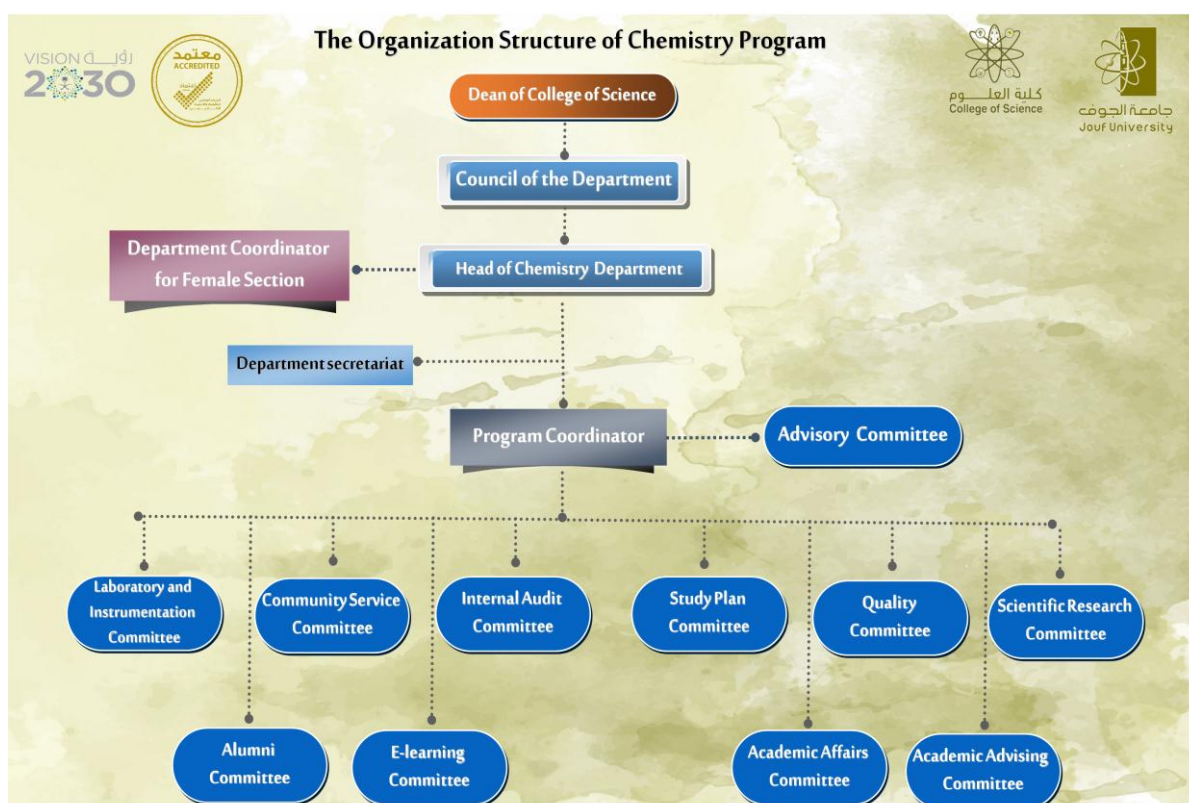
1.2 Stakeholders Involvement

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

Customer (stakeholders) involvement of the Program evaluation and improvement			
Customer	Areas	Tools	Timing
Students	1- Update and Announcement of Program Mission, graduate attributes and PLOs 2- Surveys 3- Program Evaluation	- Focus group discussion - Survey (3 types CES, PES and SES)	- Once /4 years - End of courses - Annually
Staff	1- Update and Announcement of Program Mission, graduate attributes and PLOs 2- Surveys 3- Program Evaluation	- Focus group discussion - Survey (3 types	- Once /5 years - End of courses - Annually
Advisory committee/community representatives	1- Update and Announcement of Program Mission, graduate attributes and PLOs 2- Surveys 3- Program Evaluation	Meeting	Bi-annual
Employers	- PLOs achievements - Graduate abilities	Survey	Annually
Alumni	Employment & research data	Survey	Annually

2. Program Regulations

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

regulations_JU_Final_Version-3.pdf

- **Curriculum**: The Bachelor of Chemistry Program is 134 Credit hours consisting of 8 levels/ semesters followed by 48 weeks of Internship field training program (refer to Curriculum Study Plan Table above). Students are expected to finish the 134 credit hours of the program within 8 semesters (4 years) when following the level credit hours load as suggested in the study plan.
- **Attendance:** All courses described in Curriculum Study Plan Table are required with attendance level of no less than 75% in both theoretical and practical parts of the courses.
- **Graduation Requirements**: Successful Completion of the required credit hours of the program and successful completion of the research project.

H. Program Quality Assurance

1. **Program Quality Assurance System**

Provide online link to quality assurance manual

https://drive.google.com/drive/u/2/folders/1UUZM_LSUrNC0auFZCG3fdrNj6_R-smOA

- The work of the various questionnaires that belong to the program

- Open meetings with students

- Formation of an advisory committee in the department for the follow-up of the students after recruitment

2. **Program Quality Monitoring Procedures**

- Preparing the program Specification once at the beginning of the plan.
- Preparing course Specification, taking into consideration the correlation of course Specification with the mission and goals of the program.
- Reviewing the student's regular evaluation of the courses and academic program
- Reviewing the graduating students' evaluation of the academic courses and the academic program
- Review employers' evaluation of graduates performance
- Attaching faculty members to training courses and workshops to provide them with the necessary teaching skills (introducing them to learning theories and teaching and learning strategies).
- Comments and opinions of faculty members.
- Students work (homework, presentation, ….) checked well to ensure that it is done by student themselves.
- Students informed the feedback of their works and their marks to can improve their works.
- The internal verification of student achievement standards is carried out, the correction of the students 'assignments and tests is reviewed by a faculty member who is not teaching the course from the same program, to make sure that all parts of the work have been awarded grades, and that the grades have been collected Correctly.
- The accuracy of the correction Verified on a random sample, as the exams and evaluation committee of the academic program selects a random sample not less than 10% of the courses for each semester from the students 'answers, with an emphasis that they include(the highest and lowest grades and failure cases). The names of students are hidden from the papers, photocopied, and then handed over to the reviewing member. Research, projects and oral tests are not re-corrected if more than one faculty member participates in their conduct.
- Preparing the course report every semester. Improvements and additions to course specification can be made based on the feedback from the course report in each semester.
- Preparing the program report annually, improvements and amendments can be made to the courses and program specification based on the feedback from the program report annually.
- At the end of the four years, a self-study report for the program is prepared, and the needed development in program's mission, goals, and learning outcomes are suggested and reviewed.

Table No. 1: Quality assurance activities of the Program

Milestone	Week #1 (First Semester)	Week #2 (First Semester)	Week #14 (First Semester)	Week #15 (First Semester)	Week #1 (Second Semester)	Week #2 (Second Semester)	Week #12 (Second Semester)	Week #13 (Second Semester)	Week #14 (Second Semester)	Week #15 (Second Semester)
First Semester										
Program Specifications	■									
Course Specifications	■									
Course Specifications Review		■								
Course Reports			■	■						
Course Reports Review				■	■					
Course Evaluation Survey Analysis			■	■						
Course Files			■	■						
Course Files Review & Exam Review				■	■					
Second Semester										
Course Specifications					■					
Course Specifications Review						■				
Course Reports							■	■		
Course Reports Review									■	■
Course Evaluation Survey Analysis							■	■		
Course Files							■	■		
Course Files Review & Exam Review									■	■

Milestone	Evaluation Time
KPI's Analysis	At the end of the Academic Year
PLO's Analysis	At the end of the Academic Year
Annual Program Report (APR)	At the end of the Academic Year
Surveys Analysis Reports	At the end of the Academic Year
Independent Opinion (External Review)	Every 3 years
Self-study Report (SSR)	Every 3-4 years
Self-evaluation Scales (SES)	Every 3-4 years

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

▪ The courses specifications that are taught through other scientific departments are accordance with the program Specification, and taking correlation of these programs specification with the mission and goals of the program.

▪ Program management is provided with courses reports taught through other scientific

departments. Improvements and additions to course specification can be made based on feedback from the course report in each semester.

- ▪ Review the results of the evaluation of the courses of students and respond to their observations.
- ▪ Presenting the results of the evaluation of the decisions of the students and faculty members to the plans committee to develop the curricula so as to help the quality of learning outcomes.
- ▪ Reviewing the courses periodically to ensure continuity of relevance to the needs of students in the programs offered through the Quality, Development and Academic Accreditation Unit in the faculty where they are reviewed in the light of the mission and objectives of the department, assessment of the course (s) through students (questionnaires) to provide feedback.
- ▪ Meetings with students enrolled in the course/courses concerned.

Make reference comparisons with similar courses in a similar program in other colleges.

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

Many measures and arrangements are in place to ensure consistency between male and female sections regarding teaching/learning activities, extracurricular activities, facilities and resources, examinations and quality measures, these measures are in two types planning and actions as follow;

Planning (positions):

• Assigning a coordinator for female section to coordinate with male section in the daily operations to ensure consistency between both sections regarding learning resources, facilities and teaching staff.

• Assigning a Female staff member as an assistant for phase coordinators to ensure equity between both sections.

• Assigning a female staff member to be assistant for course coordinator for each course to ensure implementation of all learning & teaching activities as equal as possible with involvement of all female staff in course committee which is headed by course coordinator to ensure full coordination and involvement in course planning, implementation and reporting from both sections prospective.

• Assigning a Female staff member to be assistant of program quality coordinator in female section to ensure that all evaluations, surveys, reports are considering both sections separately and collectively.

• Female staff members are represented in all course committee to ensure the same course contents, implementation, assessment and evaluations in both sections.

• The policy controlling equity between both sections is established, will known and followed

Actions:

Some action and percussions are taken to maximize the consistency between female and male sections as follow;

• The same course contents, teaching strategies and assessment methods.

• Identical time tables for both sections.

• Simultaneous examinations in both sections.

• Separate course reports for each section to ensure evaluation of course quality for both sections and combined one.

• Analysis of program indicators stressing any differences between male and female sections.

- Program statistical data stressed male and female results and combined one.
- learning resources and facilities are almost at the same level in both sections including the average number of students enrolled per class, teaching aids, laboratories, internet coverage, library and extracurricular activities.
- Male and female students results in examinations are reflected in separate course reports and combined one to explore any differences in courses completion rate, grade distributions and trend over time in either sections as well as the combined one.
- Other course evaluations including achievement of courses and program learning outcomes, courses and program evaluation surveys and course reporting, all these evaluations expressed the female and male as well as combined results with supposed improvements based on evaluations, and consequently a separate course portfolios for both male and female sections as well as a combined one for each course are there.
- Courses and program evaluations and types of surveys are conducted for both sections simultaneously using the same methods, analysis, interpretations and improvement actions.
- Male and female students representatives are involved in relevant committees,
- Results and analysis of program KPIs are usually done for both sections and for combined one based on the availability of data with suggested section wise improvement when required.
- Female staff was represented in almost all quality related committees to ensure equity between sections.

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

N/A

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

The Assessment and Evaluation

The 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. Assessment tools of the PLOs (i.e., collecting data) can be direct or indirect. Direct assessment of PLOs usually relies on the course work, whereas indirect assessments of PLOs are usually obtained by using surveys. This step 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 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.

| PLOs | Assessment method | | | |
	Direct PLOs assessment	Indirect PLOs assessment		
PLOs (k1- k4) **(S1- S5)** **(V1- V3)**	Capstone courses; CLOs achievements of selected capstone courses	Alumni satisfaction Survey	Last year students survey	Employer Satisfaction survey about graduate abilities
Data collection	Student Assessment committee	Quality and Accreditation Unit		
Data processing	Quality and Accreditation Unit through the following tasks; Data presentation Discovering weaknesses Suggesting improvements Formulation of Annual Program Report (APR). Final improvement plans Broadcast of the action plans Follow up of Implementation Reporting of results in next APR			
Timing	End of academic year			
Expected recommendations for changes based on PLOs assessment	Curriculum; contents, PLOs narration, teaching strategies, student assessment, courses sequencing or learning resources PLOs assessment methods; Further data. Data source, analysis PLOs constructions; Others; training, recruitment, etc.			

7. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Effectiveness of teaching	Staff	Survey (PES)	End of academic year
	Staff members	Survey (CES)	End of each course
	Students exam results	Grade distribution	End of each course
	Course reports	CLOs assessment	End of each course
	APR	PLOs assessment	End of each course
Assessment methods	Staff	Survey (PES) Survey (CES)	End of academic year
	Students	Survey (CES)	End of each course
Learning resources	Staff	Survey (PES)	End of academic year
	Students	Survey (CES)	End of academic year
Effectiveness of Leadership	Staff	Survey (PES))	End of academic year
	Admin staff	Survey (PES)	End of academic year
Overall quality of the program	All aspects, teaching, surveys, review etc.	KPIs	End of academic year

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

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

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

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

8. Program KPIs*

The period to achieve the target (4) years.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	75%	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 Follow up	End of the academic year
2	KPI-P-02	Students' Evaluation of quality of learning experience in the program	4.95	Average of overall rating of final year students for the quality of learning experience in the program on a five-point scale in an annual survey PES	End of the academic year
3	KPI-P-03	Students' evaluation of the quality of the courses	5	Average students overall rating for the quality of courses on a five-point scale in an annual survey CES	End of semesters
4	KPI-P-04	Completion rate	75%	Proportion of undergraduate students who completed the program in minimum time in each cohort Student results	End of the academic year

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
5	KPI-P-05	First-year students retention rate	%85	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 Student results	End of the academic year
6	KPI-P-06	Students' performance in the professional and/or national	%80	Percentage of students or graduates who were successful in the professional and / or national examinations, or their score average and median Graduate results	End of the academic year
7	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	%50	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 Graduate results	End of the academic year
8	KPI-P-08	Average number of students in the class	30	Average number of students per class (in each teaching session/activity: lecture, small group, tutorial, laboratory or clinical session) Students Data	End of the academic year
9	KPI-P-09	Employers' evaluation of the program graduates proficiency	%80	Average of overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey EES	End of semester
10	KPI-P-10	Students' satisfaction with the offered services	4.5	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 PES	End of semester
11	KPI-P-11	Ratio of students to teaching staff	1:25	Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program Staff data	End of the academic year
12	KPI-P-12	Percentage of teaching staff distribution	Assist.P :59.24 % Assoc.P :26.06 % Prof.: 14.7 %	Percentage of teaching staff distribution based on: a. Gender b. Branches c. Academic Ranking Staff data	End of the academic year
13	KPI-P-13	Proportion of teaching	0%	Proportion of teaching staff	End of the

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
		staff leaving the program		leaving the program annually for reasons other than age retirement to the total number of teaching staff. Staff data	academic year
14	KPI-P-14	Percentage of publications of faculty members	%100	Percentage of full-time faculty members who published at least one research during the year to total faculty members in the program Research Data	End of the academic year
15	KPI-P-15	Rate of published research per faculty member	3	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) Research Data	End of the academic year
16	KPI-P-16	Citations rate in refereed journals per faculty member	6	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 Research Data	End of the academic year
17	KPI-P-17	Satisfaction of beneficiaries with the learning resources	4.5	Average of beneficiaries' satisfaction rate with the adequacy and diversity of learning resources (references, journals, databases… etc.) on a five-point scale in an annual surveys.	End of the academic year
18	KPI-P-18	Number of research groups in the program	3	Report of Scientific Research Committee	The end of the 2nd semester
19	KPI-P-19	The number of supported research projects obtained by the program per year	10	Report of Scientific Research Committee	The end of the 2nd semester
20	KPI-P-20	Percentage of students participating in extracurricular activities	30	Report of Scientific Research Committee	The end of the 2nd semester
21	KPI-P-21	Employers' satisfaction with the program's target, vision and mission	4.5	Average of Employers' satisfaction with the program's target, vision and mission (EES):	The end of the 2nd semester
22	KPI-P-22	Percentage of student graduation projects	100%	Report of Scientific Research Committee	The end of the 2nd

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No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
		related to the surrounding community			semester

(CES): course evaluation survey, (PES): Program Evaluation Survey, (APR): Annual program report.
(EES): Employer evaluation survey, (AES) Alumni evaluation survey

* including KPIs required by NCAAA

I. Specification Approval Data

Council / Committee	Chemistry Department
Reference No.	19th Department Council - Subject 4
Date	26/4/2021