



# Program Specification

— (Postgraduate)

Program Name:	<b>Ph.D. in Chemistry</b>
Program Code (as per the Saudi Standard Classification of Educational Levels and Specializations):	<b>053101</b>
Qualification Level:	<b>8</b>
Department:	<b>Chemistry</b>
College:	<b>Science</b>
Institution:	<b>King Khalid University</b>
Program Specification:	New <input type="checkbox"/> updated* <input checked="" type="checkbox"/>
Last Review Date:	<b>13/2/1445 H</b>

\*Attach the previous version of the Program Specification.



## Table of Contents

A. Program Identification and General Information .....	3
B. Mission, Goals, and Program Learning Outcomes .....	4
C. Curriculum .....	5
D. Thesis and Its Requirements (if any).....	10
H. Student Admission and Support: .....	10
E. Faculty and Administrative Staff: .....	12
F. Learning Resources, Facilities, and Equipment: .....	13
G. Program Quality Assurance: .....	15
H. Specification Approval Data:.....	20



## A. Program Identification and General Information:

### 1. Program's Main Location:

College of Science, Main Campus, Alfaraa, Abha, Saudi Arabia

### 2. Branches Offering the Program (if any):

No branch offers this program

### 3. System of Study:

Coursework & Thesis  Coursework

### 4. Mode of Study:

On Campus  Distance Education  Other .....(specify)

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

Up to date, the program has no official partnerships.

### 6. Professions/jobs for which students are qualified:

- Academia
- Research and development
- Industry

### 7. Relevant occupational/ Professional sectors:

- Higher education
- Research and development
- Industry

### 8. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1. NA		
2.		
3.		
4.		

### 9. Total credit hours: (64H)



## B. Mission, Goals, and Program Learning Outcomes

### 1. Program Mission:

To prepare qualified academicians and researchers with advanced knowledge and skills in the field of chemistry to contribute in the community development.

### 2. Program Goals:

The objective of the graduate program is to educate and train students to become highly effective scientists by providing them with the interdisciplinary tools, research skills and ethical and service sensibilities needed to succeed in their future career. This includes offering a variety of rigorous graduate level courses, maintaining cutting-edge research programs within individual laboratories and compliance with the Code for Professional Ethical Conduct. Candidates for a Ph. D. degree in Chemistry must demonstrate the ability to plan, execute, evaluate, and communicate original chemical research.

### 3. Program Learning Outcomes:\*

#### Knowledge and Understanding:

K1	To outline a substantial and advanced body of knowledge and understanding of contemporary chemistry.
K2	To describe thorough knowledge and understanding of recent developments and emerging issues and challenges in one or more disciplines in chemistry.
K3	To recognize current advanced knowledge from conducting original research and scholarly activities considerably contributing to advancing one or more disciplines in chemistry.

#### Skills:

S1	To solve key challenges in highly complex contexts in one or more disciplines in chemistry.
S2	To apply novel and highly advanced processes, techniques, tools, instruments, and/or materials to deal with highly complex, emerging, and challenging practical activities in one or more disciplines in chemistry.
S3	To develop, adapt, and implement highly advanced research or inquiry methodologies to generate original knowledge that significantly contributes to one or more disciplines in chemistry.
S4	To communicate in numerous forms to disseminate and promote original knowledge and new insights, and to conduct scientific and professional dialogue with peers, the community, and the society at large.

#### Values, Autonomy, and Responsibility:

V1	To demonstrate high levels of integrity and professional and academic values while dealing with and promoting emerging ethical and professional issues, research, and knowledge in chemistry and related applications.
----	--





V2	To acquire continuously professional experiences, and make academic and/or professional strategic decisions, with substantial autonomy in chemistry and related applications.
V3	To collaborate and participate professionally and proactively leading groups in various research and/or professional projects in chemistry and related applications while assuming full responsibility for the work.
V4	To efficiently manage specialized tasks and activities in research in chemistry and related applications.

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

## C. Curriculum:

### 1. Curriculum Structure:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
<b>Course</b>	Required	15	7	10.9%
	Elective	9	28	43.75%
Graduation Project (if any)	-	-	-	-
Thesis (if any)	Required	1	29	45.31%
Field Experience (if any)	-	-	-	-
Others (.....)	-	-	-	-
<b>Total</b>		<b>25</b>	<b>64</b>	<b>100%</b>

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

### 2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	7000CHEM	Chemistry Teaching	R		0	Program
	7001CHEM	Ethics in Scientific Research	R		1	Program
	7002CHEM	Laboratory Safety	R		1	Program
	7003CHEM	Chemical Literature	R		1	Program
	7004CHEM	Research Rotation I	R		0	Program
Level 2	7501CHEM	Departmental Seminar I	R		0	Program
	7502CHEM	Major Field Seminar I	R		0	Program
	7506CHEM	Research Rotation 2	R		0	Program
Level 3	7006CHEM	Advanced Scientific Communication*	R		1	Program
	7005CHEM	Pre-Dissertation Research 1	R		1	Program
	7507CHEM	Major Field Seminar 2	R		0	Program
	7503CHEM	Departmental Seminar 2	R		0	Program
	7504CHEM	Research Group Seminar 1	R		0	Program
Level 4	7508CHEM	Departmental Seminar 3	R		0	Program
	7007CHEM	Original Research Proposal	R		1	Program
	7510CHEM	Research Group Seminar 2	R		0	Program



Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	7505CHEM	Graduation Research Seminar 1*	R		0	Program
	7511CHEM	Pre-Dissertation Research 2	R		1	Program
	7509CHEM	Major Field Seminar 3	R		0	Program
Level 5	7600CHEM	Ph.D. Dissertation	R		29	Program
	7513CHEM	Graduation Research Seminar 2	R		0	Program
	7614CHEM	Major Field Seminar 4	R		-	Program
	6512CHEM	Departmental Seminar 4	R		-	Program
	7515CHEM	Research Group Seminar 3	R		-	Program
Level 6	7617CHEM	Major Field Seminar 5	R		-	Program
	7516CHEM	Departmental Seminar 5	R		-	Program
	7518CHEM	Research Group Seminar 4	R		-	Program

\* Include additional levels (for three semesters option or if needed).

\*\* Add a table for the courses of each track (if any)

## Course List

### 1. Elective Courses

Elective courses with credit hours			
Course code	Course title	Course type	Credit hour
7101CHEM	Physical Organic Chemistry	Elective	3
7102CHEM	Spectroscopic Organic Structure Determination	Elective	3
7103CHEM	Advanced Organic Chemistry I	Elective	3
7104CHEM	Advanced Organic Chemistry II	Elective	3
7105CHEM	Advanced Synthesis in Chemistry	Elective	3
7106CHEM	Selected Topics in Organic Chemistry	Elective	3
7201CHEM	Advanced Inorganic Chemistry I	Elective	3
7202CHEM	Advanced Inorganic Chemistry II	Elective	3
7203CHEM	Inorganic Chemistry Synthesis	Elective	3
7204CHEM	Advanced Radiation and Nuclear Chemistry	Elective	3
7205CHEM	Advanced Applications in Group Theory	Elective	3
7206CHEM	Selected Topics in Inorganic Chemistry	Elective	3
7301CHEM	Quantum, Structure and Dynamics I	Elective	3
7302CHEM	Chemical Thermodynamics	Elective	3
7303CHEM	Chemical Kinetics and Reaction Dynamics	Elective	3
7304CHEM	Statistical Thermodynamics	Elective	3
7305CHEM	Quantum, Structure and Dynamics II	Elective	3
7306CHEM	Selected Topics in Physical Chemistry	Elective	3
7401CHEM	Separation Techniques	Elective	3
7402CHEM	Spectroscopic Analytical Techniques	Elective	3
7403CHEM	Environmental Analytical Chemistry	Elective	3
7404CHEM	Advanced Electroanalytical Chemistry	Elective	3
7405CHEM	Bioanalytical Chemistry	Elective	3
7406CHEM	Selected Topics in Analytical Chemistry	Elective	3



## 2. Applied courses

Applied courses without credit hours			
Course code	Course title	Course type	Credit hour
7008CHEM	Applied Physical Methods of Inorganic Chemistry	Elective	0
7009CHEM	Applied Separation Techniques	Elective	0
7010CHEM	Applied NMR Techniques	Elective	0
7011CHEM	Applied Statistical and Data Analyses	Elective	0
7012CHEM	Applied Physical Methods in Material Chemistry	Elective	0
7013CHEM	Applied Mathematics in Physical Chemistry	Elective	0
7014CHEM	Applied X-Ray Structure Determination	Elective	0
7015CHEM	Applied Mass Spectroscopy	Elective	0
7016CHEM	Applied Spectroscopic Methods of Structure Determination	Elective	0
7017CHEM	Applied Quantitative Methods of Computational Chemistry	Elective	0
7018CHEM	Scientific Presentations	Elective	0
7019CHEM	Applied Research Techniques	Elective	0

## 3. Supportive courses

Supplementary courses without credit hours			
Course code	Course title	Course type	Credit hour
7001CHEM	Ethics in Scientific Research	Required	1
7002CHEM	Laboratory Safety	Required	1
7003CHEM	Chemical Literature	Required	1
7004CHEM	Research Rotation	Required	0
7501CHEM	Departmental Seminar 1	Required	0
7005CHEM	Pre-Dissertation Research	Required	1
7502CHEM	Major Field Seminar	Required	0
7503CHEM	Departmental Seminar 2	Required	0
7006CHEM	Advanced Scientific Communication*	Required	1
7007CHEM	Original Research Proposal	Required	1
7514CHEM	Research Group Seminar	Required	0
7505CHEM	Graduation Research Seminar*	Required	1

## 4. Qualifying courses

Supplementary courses without credit hours			
Course code	Course title	Course type	Credit hour
7100CHEM	Special Topics in Organic Chemistry	Elective	0
7200CHEM	Special Topics in Inorganic Chemistry	Elective	0
7300CHEM	Special Topics in Physical Chemistry	Elective	0
7400CHEM	Special Topics in Analytical Chemistry	Elective	0

## 3. Course Specifications:

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





#### 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, Autonomy, and Responsibility			
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3	V4
7101CHEM	A	P	P	A	A	A	A	A	P	P	P
7102CHEM	A	A	A	A	A	A	A	A	A	A	A
7103CHEM	P	P	P	P	P	P	P	P	P	P	P
7104CHEM	A	A	A	A	A	A	A	A	A	A	P
7105CHEM	A	A	A	A	A	A	A	A	A	P	P
7106CHEM	P	P	A	P	P	P	P	P	A	P	P
7201CHEM	P	P	P	P	P	P	P	P	P	P	P
7202CHEM	A	A	A	A	A	A	A	A	A	A	P
7203CHEM	P	A	A	p	P	P	P	A	A	P	-
7204CHEM	P	P	P	A	A	P	A	P	A	A	P
7205CHEM	P	A	A	-	P	P	A	P	A	P	P
7206CHEM	P	P	P	P	P	P	A	P	A	A	P
7301CHEM	P	P	P	P	P	-	P	P	P	P	P
7302CHEM	A	A	A	A	A	A	A	A	A	A	A
7303CHEM	P	P	P	P	A	A	A	A	P	P	P
7304CHEM	P	P	P	P	A	A	A	A	A	P	A
7305CHEM	A	A	A	A	A	A	A	A	A	A	A
7306CHEM	P	P	P	P	A	A	A	P	P	P	P
7401CHEM	A	A	A	A	P	P	A	A	A	P	P
7402CHEM	A	A	A	A	P	P	A	A	A	A	P
7403CHEM	P	P	A	A	A	A	A	A	A	A	P
7404CHEM	A	A	A	A	A	A	A	A	A	P	P
7405CHEM	A	A	A	A	P	A	A	A	A	P	P
7406CHEM	P	P	P	P	P	P	P	P	A	A	P

\* 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, to achieve the program learning outcomes in all areas.

PLOs are achieved via the use of teaching and learning strategies. Both are used in teaching and learning methods:

1. Curriculum contents: refer to specific materials to be included in the curriculum.
2. Teaching and learning methods: are how the content is accessible.





The choice of teaching and learning methods in the program is based on:

- Maintain resemblance between PLOs/CLOs and teaching and learning approaches.
- Use multiple teaching and learning approaches.
- Indicate teaching and learning strategies that are practicable in terms of resources.
- Direct instruction: it is highly teacher-directed and is one of the most often utilized methods. This approach provides knowledge or develops expertise step by step. It also functions well to include other approaches include students directly in the development of skills. For example, lectures, informative seminars, presentations and workshops.
- Indirect instruction: it is primarily student-centered, while the two strategies can counterpart each other inspires them to create substitutes or solve problems (cognitive skills). Example as: problem solving, case-based learning, report writing and cross-examination.
- Interactive instruction: it depends on profoundly on debate and sharing among contestants. Students may benefit from peers and instructors and improve social knowledge and skills to develop thinking and logical argumentation.
- Experiential learning: it is inductive, learner-centered, and activity-based. Personalized reflection on learning plans to adapt learning to other environments are important factors in the successful learning of experiences is best used for PLO skills and knowledge.

Independent learning: it refers to the variety of learning approaches which are intended to promote the growth, self-reliance and self-improvement of each individual student initiative. Examples include: assignment, homework, writing of reports and research projects. This technique also changed the path to a student-centered methodology in the education system.

The teaching strategies and assessment methods used by the department's staff to accomplish the program's learning outcomes are listed in the following

## 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 once in the program's cycle).

This method involves steps as following:

Appropriate courses educated at higher levels.

Program of Chemistry applies different assessment methods to measure its learning outcomes and appropriate to each domain of learning outcomes.

Department of chemistry utilized DIRECT and INDIRECT methods for effective assessment of PLOs.

At the end of each semester's examinations, chemistry department faculty members evaluate the learning outcomes of the courses they taught, and the data is documented in the course report for each course.

The department of chemistry also has a plan which depends on four main phases (Phase 1: Program Tree, Phase 2: Course Learning Outcomes to Program Learning Outcomes, Phase 3: Assessment Planning and Phase 4: Closing Assessment Loop) to evaluate its learning outcomes in order to determine the degree toward which students gained the skills and information included in the program's learning objectives, as well as its labor market qualification. In addition, the department of chemistry prepares a report on program learning outcomes assessment.

Achievement PLOs is measured by several methods:

- Direct methods: Final, midterms, reports and presentation
- Indirect methods: Evaluation by employers and alumni





By comparing the results of measuring learning outcomes measured by direct and indirect methods, it is found that the indirect measurement results are higher than direct. The evaluation by graduates is the highest, followed by employers, then direct evaluation of faculty members

## D. Thesis and Its Requirements (if any):

### 1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

The program follows the university regulations

### 2. Scientific Supervision:

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/mechanisms of the scientific supervision and follow-up)

The program follows the university regulations

### 3. Thesis Defense/Examination:

(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

The program follows the university regulations

## H. Student Admission and Support:

### 1. Student Admission Requirements:

To obtain Ph. D. in chemistry, the student must successfully complete 42 credit hours. Student will design research project according to his specialization (Analytical, Inorganic, Organic and Physical Chemistry) under his supervisor. The work in Ph.D Thesis extended over three semester, and the student is granted grade after sixth semester.

### 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).

One or two of faculty members will be assigned as main- and co-supervisors of the research work to satisfy the dissertation requirements. Supervisors will be assigned based on the research topic that may be related to one or two fields in chemistry (organic, inorganic, physical, or analytical), one as major topic and the other as minor topic. The student will be allowed to submit the thesis at the end of sixth semester. In addition, there will be a presentation for reporting final thesis work by student to present before committee. The student outcomes will be orally examined



and evaluated based on his specialization work, as well as oral discussion by evaluation committee. Accordingly, the student has to satisfy the following outcomes:

- To acquire professional-level knowledge and expertise in his/her chosen area of specialization.
- To demonstrate competence in identifying a significant scientific problem.
- To learn to independently build on their knowledge in their chosen area from the literature and other sources, as needed, for their continued education and professional activities.
- To develop professional competence in presenting scientific results and conclusions, in written and oral forms.
- To contribute new knowledge via the thesis or dissertation, and through original scientific publications by professional expertise.
- To demonstrate efficient problem-solving skills and ability to think critically to address problems in analytical, inorganic, organic and physical chemistry.
- To implement and interpret results to reach literature in chemistry field
- To work effectively both as an individual and as a collaborative team member.
- To solve problems through creative scientific experimentation, data analysis, and evaluation.

Supervisors tasks

- To provide all relevant guidelines from the basic level to the advanced stage for the completion of research project.
- To periodically evaluate the progress of the research work.
- To aid in suggesting a plan for research project steps including a time schedule.

### 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)

Forming committees' for student's orientation.  
Announce 5 office hours for each faculty member to be part of academic supervision and scientific assistance.  
Faculty member help and support students solving problems  
Faculty member advice students planning their career,  
The availability of full information about department and its members and their contact information  
The availability of full information about study plan and courses taught.

### 4. Special Support:

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





## E. Faculty and Administrative Staff:

### 1. Needed Teaching and Administrative Staff:

Academic Rank	General	Specialty		Special Requirements / Skills (if any)	Required Numbers		
			Specific		M	F	T
Professor	Chemistry	2	Organic	-	4	4	8
		2	Inorganic				
		2	Analytical				
		2	Physical				
Associate Professor	Chemistry	3	Organic	-	4	4	8
		3	Inorganic				
		3	Analytical				
		3	Physical				
Assistant Professor	Chemistry	4	Organic	-	8	8	16
		4	Inorganic				
		4	Analytical				
		4	Physical				
Lecturer	0	-	-	-	0	0	0
Teaching Assistant	0	-	-	-	0	0	0
Technicians and Laboratory Assistant	Chemistry	4	Organic	As the requirements and skills of KKU of the technicians	8	8	16
		4	Inorganic				
		4	Analytical				
		4	Physical				
		2	Program coordinator	-	2	2	4





Administrative and Supportive Staff	Administrative	2	and Deputy coordinator				
			program officers				
Others (specify)	-		-	-	-	-	-

## F. Learning Resources, Facilities, and Equipment:

### 1. Learning Resources:

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

Adopting relevant textbook recommended by King Khalid University, Academic department & the Curriculum Committee.

b. Curriculum committee will review the appropriateness of the required and recommended textbooks by KCU IE department

c. Concerned departments and faculty are consulted for this matter then approval is sought from the departmental board, curriculum committee and College Board.

d. Writing laboratory manuals and some other textbooks by faculty and reviewing them with independent advice before approval and continually updating them every 2 to 3 years.

e. Posting courses on the web Blackboard.

1b. What processes are followed by faculty and teaching staff for planning and acquisition resources for library, laboratories, and classrooms.

a. Faculty member decide textbooks that used in his courses, and make a list and submit to curriculum committee.

b. The curriculum committee is responsible to evaluate the adequacy of resources for library, laboratories, and classrooms textbooks, and reference materials for each course and units. The postgraduate committee ensures that the resources are suitable for teaching & learning.

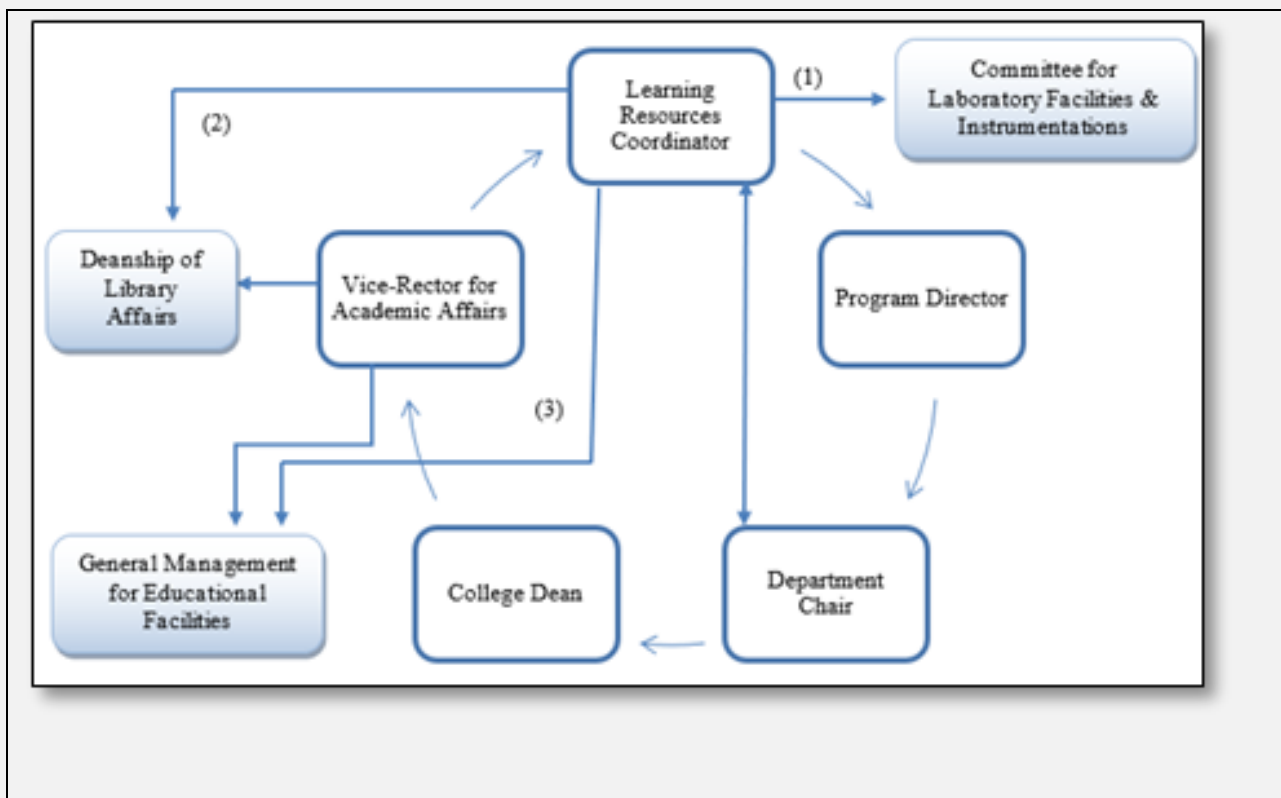
c. Required resources by different disciplines are to be discussed in the departmental board meetings and to be sent to the dean or responsible vice deans.

d. Requests for resource improvement are regularly included in the annual course reports. Committees are formed to inspect the current textbook and compare it to the most recent textbooks in the field. The departmental board and curriculum committee and higher academic councils in the university will approve the new book selected.

Survey Evaluation faculty member for learning resources.

College board approves the required textbook upon the recommendations of the Curriculum committee based on the recommendations coming from departmental board meetings, course coordinators, and unit coordinators





## 2. Facilities and Equipment:

(Library, laboratories, classrooms, etc.)

Distinct evidences were collected for all reviewed criteria, including adequacy and appropriateness of learning resources in terms of program description, checklists, rules, and privacy policies, as well as services with procedures for the management of resources and reference materials that include library services, links to KKU electronic resources, E-learning facilities and Tamkeen YouTube channel. The evidences implement the efficiency of updated library resources, their ease of access, sufficiency and availability for students, as well as the accessibility to the digital reserve of the Saudi Digital Library. The main campus library is open 6-days a week for male students and 2-days a week for female students. Different terminal libraries are available and open 5-days a week for male and female students in terminal branches of the university that introduce Chemistry PhD program. Online access to the central library and SDL is available for all male and female students 24/7, with adequate e-support.

The program supports teaching laboratories with adequate equipment and materials for performing all scientific experiments included within the course specifications, with a clear plan for regular equipment maintenance and update. Yearly-based requests for materials and equipment is collected from teaching staff and submitted to appropriate university administrative committees to supply the department with its needs. Instrument maintenance forms are available to report any equipment malfunction to the assigned personnel in the university educational services in order to perform the maintenance process.

Orientation of new students is always carried out during the first week of semester 1 for the program by well acknowledged faculty members. Technical training and support for all personnel is regularly offered in terms of workshops, E-training and technical support.

The number of classrooms and laboratories assigned for the students of the PhD. program is fair, but requires some improvement as the program aims to attract the attention of a larger number of male and female students.

The program lacks for the sufficient number of qualified technicians and specialists for the operation and preparation of laboratories. During the past year, a number of technicians left the program, leaving only 4 male and



7 female technicians are available for the program over 26 chemical laboratories. More trained technicians are required for efficient implementation of this criteria.

Continuous evaluation of the program resources and facilities is ongoing to achieve improvement through assessing online E-learning platforms, training staff and students for Blackboard learning management system and improving the system and performing workshops on professional management of meeting and remote activities via Zoom platform.

### 3. Procedures to ensure a healthy and safe learning environment:

(According to the nature of the program)

The department has safety committee which measures the safety in the Labs and provide safety environment in the labs and department. Safety tools including fire-fighting equipment, safety showers, and safety guide marks are all installed and regularly maintained in teaching classrooms and laboratories. University and faculty guide books for safety in the laboratories are available for all students in electronic formats, and forms for reporting accidents and risk-evaluation are also available. Students and staff members regularly attend safety, fire-fighting and essential first-aid workshops and training programs. Hazardous chemical wastes are regularly inspected, classified, and stored safely for waste disposal. An evacuation experiment was conducted for the event of a release of toxic material (toxic gas) within the chemistry building, and clear instructions for the evacuation process are electronically released by the Occupational Safety and Health Administration

## G. Program Quality Assurance:

### 1. Program Quality Assurance System:

Provide a link to quality assurance manual.

the development of QAS for doctoral studies considers the following guidelines:

-Education quality policy and goals

The establishment of a quality culture must be based on an education quality policy and goals that, through the appointment of QAS managers, are publicly accessible and known.

- Quality assurance in the design of education programs

The maintenance and renewal of the range of educational courses and programs on offer must be founded on the development of methodologies for the design, approval, implementation, review and improvement of education programs and, if applicable, for their elimination and for attending to suggestions and complaints regarding programs.

- Development of education programs to encourage student learning and other student-oriented actions

The actions undertaken, including the design, development and continual improvement of external training placements and student mobility, must serve to encourage student learning.

- Quality assurance of teaching and research staff (TRS) and administrative and service staff (AdSS)

The actions undertaken must ensure that the admission, management and training of TRS and AdSS members is conducted in such a way that these staff members may work satisfactorily and complete the duties that are theirs.

- Quality assurance of material resources and services

It will be necessary to ensure that material resources and services are suitably designed, approved, managed, reviewed and improved in order to develop student learning in an appropriate manner.

- Compiling and analysing results for the improvement of education programs





The results of the education program must be compiled and analysed in order to review and improve the program. The results of the education program refer in part to the outcomes of learning, access to the labour market and the satisfaction of stakeholders (how far needs and expectations are met).

- Publication of information and rendering of accounts on education programs

It will be necessary to ensure that up-to-date information is published regularly and that accounts are rendered on the education programs provided and related aspects.

## 2. Program Quality Monitoring Procedures:

## 3. Procedures to Monitor Quality of Courses Taught by other Departments:

NA

## 4. Procedures Used to Ensure the Consistency between within the main campus:

(including male and female sections).

There is no separate male and female sections

## 5. Assessment Plan for Program Learning Outcomes (PLOs):

Survey for employers about PLOs know the quality of graduates

Survey form the last year students about PLOs to know the quality of educations

Survey form the alumni about PLOs to know the quality of educations

Survey form faculty members about PLOs to know the quality of graduates

## 6. Program Evaluation Matrix:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Effectiveness of teaching and assessment	Student, per Review, Program leaders	Program evaluation, Student-Faculty meeting	end of academic year
Extent of achievement of course/program learning outcomes	Program Leaders, Faculty, quality and development unit	Preparation of program Report -Peer consultation on teaching	At end of each study term





Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
		-Department Council discussions - Self-study report	
Quality of learning Resources	Student, Faculty, internal and external auditors.	Program evaluation Self-study report	At end of each study term At writing of self-study report

**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.)





## 7. Program KPIs:\*

The period to achieve the target (\_\_\_\_) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
<b>2- Teaching and Learning</b>	KPI-PG-01	Students' Evaluation of quality of learning experience in the program	4.5/5	Survey	Annual
	KPI-PG-02	Students' evaluation of the quality of the courses	4/5	Survey	Annual
	KPI-PG-03	Students' evaluation of the quality of academic supervision	5/5	Survey	Annual
	KPI-PG-04	Average time for students' graduation	3.5	Survey	Each Semester
	KPI-PG-05	Rate of students dropping out of the program	0%	Survey	Annual
	KPI-PG-06	Employers' evaluation of the program graduates' competency	5/5	Survey	Annual
<b>-3- STUDENTS</b>	KPI-PG-7	Students' satisfaction with services provided	5/5	Survey	Annual
<b>-4- FACULTY MEMBERS</b>	KPI-PG-8	Ratio of students to faculty members	5/5	Survey	Annual
<b>6-Research and Projects</b>	KPI-PG-9	Percentage of publications of faculty members	100%	At least one research publication	Annual
	KPI-PG-10	Rate of published research per faculty member	15	Total number of refereed and/or published research to the total number of faculty members during the year)	Annual





No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
	KPI-PG-11	Citations rate in refereed journals per faculty member per year	200	Total number of citations in refereed journals from published research for faculty members to the total published research	Annual
	KPI-PG-12	Percentage of students' publication	200:10	Percentage of students who: a. published their research in refereed journals b. presented papers in conferences to the total number of students in the program during the year.	Annual
	KPI-PG-13	Number of patents, innovative products, and awards of excellence	1 :5	Number of: a. Patents and innovative products b. National and international excellence awards obtained annually by the students and staff of the program.	Annual

\*including KPIs required by NCAAA



## H. Specification Approval Data:

<b>Council / Committee</b>	Plan and curriculum committee Academic Development and Quality committee
<b>Reference No.</b>	
<b>Date</b>	13-02-1445 H

<b>Council / Committee</b>	Department Council
<b>Reference No.</b>	3/1445
<b>Date</b>	20-02-1445 H

<b>Council / Committee</b>	College Council
<b>Reference No.</b>	3/1445
<b>Date</b>	27-02-1445 H

