

# Program Specification

(Bachelor)

| | |
|---|---|
| Program: | **Bachelor of science in chemistry (BSc.)** |
| Program Code (as per Saudi university ranking): | **CHEM** |
| Qualification Level: | **Bachelor's degree (Level 6)** |
| Department: | **Chemistry** |
| College: | **Science** |
| Institution: | **University of Tabuk** |
| Program Specification: | New ☐ updated* ☒ |
| Last Review Date: | 1-9-2023 |

*Attach the previous version of the Program Specification.

## Table of Contents

## A. Program Identification and General Information

### 1. Program's Main Location :

**Faculty of science - University of Tabuk**
Main Campus

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

Branch 1. Alwajh campus

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

NA

### 4. Professions/jobs for which students are qualified

| | |
|---|---|
| 211301 | Chemist |
| 211302 | Industrial chemist |
| 211304 | Petrochemical industries chemist |

### 5. Relevant occupational/ Professional sectors:

- Chemistry industries.
- Petrochemical industry.
- Scientific and medical labs.
- Educational sectors.

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

| Major track/pathway | Credit hours (For each track) | Professions/jobs (For each track) |
|---|---|---|
| **1.** NA | NA | NA |
| **2.** | | |
| **3.** | | |
| … | | |

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

| exit points/awarded degree | Credit hours |
|---|---|
| **1.** NA | NA |

| | |
|---|---|
| **2.** | |
| **3.** | |

8. Total credit hours: (134)

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

### 1. Program Mission:

Qualifying distinguished human cadres with high-quality education in the field of Chemistry and environmental chemistry to strengthen the goals of sustainable development and meet the need of community and scientific research.

### 2. Program Goals:

- Keeping up with developments in the scientific field, especially in the field of chemistry, including remarkable developments and changes in all fields.
- Aligning recently emerging skills with new requirements in the labor market.
- satisfying the region's needs for distinguished graduates in the field of chemistry to achieve environmental sustainability and optimal exploitation of natural resources.
- Keeping up with the trends of the national vision and its justification to keep pace with global trends in the field of specialization “Chemistry”.

### 3. Program Learning Outcomes*

| | |
|---|---|
| **Knowledge and Understanding** | |
| K1 | Explain the basic principles, concepts, and fundamental theories of the different branches of chemistry. |
| K2 | Illustrate different spectroscopic and separation techniques of different compounds as well as the basic theories and principles of advanced techniques of all chemistry branches |
| K3 | Inferring new areas of research in both chemistry and allied fields of science and technology |
| **Skills** | |
| S1 | Apply theories, principles, and concepts of chemical analysis to detect and estimate organic, inorganic and organometallic compounds. |
| S2 | implement practical tasks using advanced and specialized techniques, tools, instruments, and/or materials to deal with practical activities in the field of chemistry |
| S3 | Communicate in various forms to disseminate knowledge, skills related to chemistry to specialist and non-specialist audiences. |
| S4 | apply digital technological and applications to process and analyze a variety of data and information related to chemistry. |
| **Values, Autonomy, and Responsibility** | |
| V1 | Adhere to the values and code of ethics associated with professional practices in the field of chemistry. |
| V2 | Effectively manage specialized tasks and activities in field of chemistry practice with autonomy under indirect supervision. |
| V3 | Collaborate and lead teamwork to effectively perform a range of tasks with responsibility to achieve common goals in field of chemistry |

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

## C. Curriculum

### 1. Curriculum Structure

| Program Structure | Required/ Elective | No. of courses | Credit Hours | Percentage |
|---|---|---|---|---|
| Institution Requirements | Required | 10 | 26 | 19.40% |
| | Elective | 5 | 13 | 9.70% |
| College Requirements | Required | 6 | 15 | 11.20% |
| | Elective | ----- | ----- | |
| Program Requirements | Required | 26 | 70 | 52.23% |
| | Elective | 2 | 4 | 3% |
| Capstone Course/Project | | 1 | 3 | 2.3% |
| Field Training/ Internship | | 1 | 3 | 2.3% |
| Residency year | NA | NA | | |
| Others | NA | NA | | |
| **Total** | | 51 | 134 | |

* 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 | MATH1101 | Introduction to mathematics<br>مقدمة في الرياضيات | Required | | 3 | Institution |
| | ELS1101 | English 1<br>انجليزي 1 | Required | | 3 | Institution |
| | GEE-S1251 | اختياري العلوم الطبيعية والاجتماعية (1) | Elective | | 3 | Institution |
| | CHEM1101 | Fundamentals of chemistry<br>أساسيات الكيمياء | Required | | 3 | College |
| | CSC1102 | Solving problems with computing<br>حل المشكلات بالحوسبة | Required | | 3 | Institution |
| | CID1101 | Communication skills<br>مهارات الاتصال | Required | | 2 | Institution |
| | ISLS1101 | Islamic culture between authenticity and contemporary<br>الثقافة الإسلامية بين الأصالة والمعاصرة | Required | | 2 | Institution |

| Level | Course Code | Course Title | Required or Elective | Pre-Requisite Courses | Credit Hours | Type of requirements (Institution, College, or Program) |
|---|---|---|---|---|---|---|
| Level 2 | BIO1101 | Fundamentals of biology<br>أساسيات علم الأحياء | Required | | 3 | College |
| | MATH1102 | Differential calculus<br>حساب التفاضل | Required | MATH1101 | 3 | Institution |
| | EDUF1102 | Critical thinking and its contemporary applications<br>مهارات التفكير الناقد وتطبيقاته المعاصرة | Required | | 3 | Institution |
| | ELS1102 | English 2<br>انجليزي 2 | Required | ELS1101 | 3 | Institution |
| | PHYS1101 | Fundamentals of physics<br>أساسيات الفيزياء | Required | | 3 | College |
| | ARAB1101 | Arabic language skills<br>مهارات اللغة العربية | Required | | 3 | Institution |
| Level 3 | CHEM1201 | General chemistry 1<br>كيمياء عامة 1 | Required | | 3 | Program |
| | BIO1201 | Principals of environmental sustainability<br>مبادئ الاستدامة البيئية | Required | | 2 | College |
| | CHEM1202 | Organic chemistry 1<br>كيمياء عضوية 1 | Required | CHEM1101 | 3 | Program |
| | MATH1201 | Fundamentals of integration<br>اساسيات التكامل | Required | MATH1102 | 3 | Program |
| | PHYS1206 | Natural resources<br>الموارد الطبيعية | Required | | 2 | college |
| | ISLS1102 | الاخلاق والقيم الحضارية في الاسلام | Required | ISLS1101 | 2 | institution |
| | LANT1101 | قواعد اللغة الانجليزية | elective | | 3 | institution |
| Level 4 | BIO1208 | Biodiversity<br>التنوع الأحيائي | Required | | 2 | College |
| | CHEM1203 | General chemistry 2<br>كيمياء عامة 2 | Required | | 3 | Program |

| Level | Course Code | Course Title | Required or Elective | Pre-Requisite Courses | Credit Hours | Type of requirements (Institution, College, or Program) |
|---|---|---|---|---|---|---|
| | CHEM1204 | Introduction to analytical chemistry<br>مقدمة في الكيمياء التحليلية | Required | CHEM1201 | 3 | Program |
| | CHEM1205 | Organic chemistry 2<br>كيمياء عضوية 2 | Required | CHEM1202 | 3 | Program |
| | GEE_T 1251 | Technology Elective Course<br>اختياري علوم القنية (1) | Elective | | 3 | Institution |
| | CHEM1206 | Inorganic chemistry 1<br>كيمياء غير عضوية 1 | Required | CHEM1201 | 3 | Program |
| Level 5 | CHEM1305 | Chemical thermodynamics<br>ديناميكا حرارية كيميائية | Required | CHEM1203, MATH1218 | 3 | Program |
| | CHEM1306 | Electrochemistry<br>كيمياء كهربية | Required | CHEM1203 | 3 | Program |
| | CHEM1301 | Organic reaction mechanism<br>ميكانيكية التفاعلات العضوية | Required | CHEM1205 | 2 | Program |
| | CHEM1302 | Inorganic chemistry 2<br>كيمياء غير عضوية 2 | Required | CHEM1206 | 3 | Program |
| | CHEM1303 | Instrumental chemical analysis<br>التحليل الكيميائي الآلي | Required | CHEM1204 | 3 | Program |
| | GEE_C1251 | Elective Culture<br>اختياري الثقافات والانسانيات (1) | elective | | 2 | institution |
| | CHEM1304 | Chemical kinetics<br>الحركية الكيميائية | Required | CHEM1203 | 2 | Program |
| Level 6 | GEE_P1251 | Elective professional and personal development<br>اختياري التطوير المهني والشخصي | Elective | | 2 | institution |
| | CHEM1312 | Chemistry of natural products<br>كيمياء المنتجات الطبيعية | Required | CHEM1205 & BIO1208 | 2 | Program |

| Level | Course Code | Course Title | Required or Elective | Pre-Requisite Courses | Credit Hours | Type of requirements (Institution, College, or Program) |
|---|---|---|---|---|---|---|
| | CHEM1307 | Solid state and surface chemistry<br>كيمياء الحالة الصلبة والسطوح | Required | CHEM1203 | 2 | Program |
| | CHEM1309 | Chemistry of heterocyclic compounds<br>كيمياء المركبات غير متجانسة الحلقة | Required | CHEM1205 | 2 | Program |
| | CHEMxxx 1 | Elective course<br>مقرر اختياري | Elective | | 2 | Program |
| | CHEM1310 | Environmental chemistry<br>الكيمياء البيئية | Required | CHEM1303 & BIO1201 | 2 | Program |
| | CHEM1311 | Methods of chromatographic separation<br>طرق الفصل الكروماتوجرافي | Required | CHEM1303 | 3 | Program |
| | CHEM 1308 | Materials science<br>علم المواد | Required | CHEM1304 & PHYS1206 | 3 | Program |
| Level 7 | CHEMxxx2 | Elective course<br>مقرر اختياري | Elective | | 2 | Program |
| | CHEM1401 | Quantum chemistry<br>كيمياء الكم | Required | CHEM1305 | 3 | Program |
| | CHEM1402 | Organometallic chemistry<br>كيمياء فلز عضوية | Required | CHEM1302 | 3 | Program |
| | CHEM1498 | Project<br>مشروع | Required | CHEM1307& CHEM1303 | 3 | Program |
| | CHEM1403 | Practical inorganic chemistry<br>كيمياء غير عضوية عملية | Required | CHEM1302 | 2 | Program |
| | CHEM1404 | Spectroscopy of inorganic compounds<br>اطياف المركبات غير العضوية | Required | CHEM1302 | 2 | Program |
| | CHEM1405 | Nuclear and radiochemistry<br>كيمياء نووية واشعاعية | Required | CHEM1305 | 3 | Program |

| Level | Course Code | Course Title | Required or Elective | Pre-Requisite Courses | Credit Hours | Type of requirements (Institution, College, or Program) |
|---|---|---|---|---|---|---|
| Level 8 | CHEM1407 | Spectroscopy of organic compounds<br>اطياف المركبات العضوية | Required | CHEM1308 | 3 | Program |
| | CHEM1406 | Corrosion of metals<br>تأكل المعادن | Required | CHEM1312 | 3 | Program |
| | CHEM1495 | Training<br>تدريب | Required | 120 Credit Hours | 3 | Program |

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

| | Course code | Course title | prerequisite | Credit hours | Type of requirements |
|---|---|---|---|---|---|
| The elective courses | CHEM1313 | Chemistry of cement<br>كيمياء الأسمنت | CHEM1302 | 2 | Program |
| | CHEM1314 | Analysis of industrial products<br>تحليل المنتجات الصناعية | CHEM1303 | 2 | Program |
| | CHEM1315 | Bioinorganic chemistry<br>كيمياء غير عضوية حيوية | CHEM1302 | 2 | Program |
| | CHEM1408 | Group theory<br>نظرية المجموعات | CHEM1302 | 2 | Program |
| | CHEM1409 | Chemistry of drugs<br>كيمياء العقاقير | CHEM1309 | 2 | Program |
| | CHEM1410 | Green Chemistry<br>الكيمياء الخضراء | CHEM1310 | 2 | Program |
| | CHEM1411 | Chemistry of petroleum and petrochemicals<br>كيمياء البترول والبتروكيماويات | CHEM1309 | 2 | Program |
| | CHEM1412 | Nano technology<br>تقنية النانو | CHEM1308 | 2 | Program |

| | | | | | |
|---|---|---|---|---|---|
| | CHEM1413 | Polymer Chemistry | CHEM1309 | 2 | **Program** |

## 3. Course Specifications:

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

https://drive.google.com/drive/folders/1pzuiznrvUuukgfs7wQC8U6SnmviVAn4_

## 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 |
| CHEM1201 | I | I | I | | I | I | | | | I | I |
| BIO1201 | I | I | | | | I | | I | I | | |
| CHEM1202 | I | I | I | | I | I | | | I | | I |
| MATH1273 | | | I | | I | I | I | | I | I | |
| PHYS1206 | I | I | | | I | I | | | I | I | |
| BIO1208 | I | I | | | I | | I | I | I | | |
| CHEM1203 | I | I | I | | I | | | I | | I | I |
| CHEM1204 | I | I | I | | I | I | | | | I | I |
| CHEM1205 | I | I | | | I | I | I | | I | | I |
| CHEM1206 | I | I | | | P | P | | | P | P | |
| CHEM1305 | P | P | | | P | | | P | | P | P |
| CHEM1306 | P | P | P | | P | | | P | | P | P |
| CHEM1301 | P | P | P | | P | P | | P | | P | |
| CHEM1302 | P | P | | | P | P | P | | | P | P |
| CHEM1303 | P | P | P | | P | P | | | | P | P |
| CHEM1304 | P | P | | | P | P | | | | P | P |
| CHEM1312 | P | | P | | M | M | M | | M | | M |
| CHEM1306 | P | P | | | | P | P | | P | P | |
| CHEM1309 | P | | P | | M | M | | | | | M |
| CHEMxxx 1 | | | | | | | | | | | |
| CHEM1310 | P | P | P | | | M | | M | M | | M |
| CHEM1311 | M | | P | | M | P | | P | P | | M |
| CHEM 1308 | M,A | M,A | M,A | | | | M,A | M,A | | M,A | M,A |
| CHEMxxx2 | | | | | | | | | | | |

| Course code & No. | Program Learning Outcomes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Knowledge and understanding | | | | Skills | | | | Values, Autonomy, and Responsibility | | |
| | K1 | K2 | K3 | --- | S1 | S2 | S3 | S4 | V1 | V2 | V3 |
| CHEM1401 | M,A | | M,A | | M,A | M,A | M,A | | M,A | | M,A |
| CHEM1402 | M,A | | M,A | | M,A | M,A | | | | M,A | M,A |
| CHEM1498 | M,A | M,A | M,A | | M,A | M,A | M,A | M,A | M,A | M,A | M,A |
| CHEM1403 | | M,A | | | M,A | M,A | | M,A | M,A | M,A | M,A |
| CHEM1404 | M,A | M,A | | | | M,A | M,A | | | M,A | M,A |
| CHEM1405 | M,A | M,A | M,A | | M,A | M,A | M,A | | | M,A | M,A |
| CHEM1407 | M | M | | | M | M | | | | M | M |
| CHEM1406 | M,A | M,A | M,A | | | M,A | M,A | | | M,A | M,A |
| CHEM1495 | M,A | M,A | M,A | | M,A | M,A | M,A | M,A | M,A | M,A | M,A |

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

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

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

- Tradition lectures (K1, K2, K3, S1, S2, S3, and S4)
- Case-Based Learning (K3, S1, S2, S3, and S4)
- Active Learning (K3, S1, S2, S3, S4 and V1)
- Effective class discussion (K3, S1, S2, S3, and S4)
- Brainstorming (K3, S1, S2, S3, and S4)
- Project approach (S3, S4, V1, V2, and V3)
- Exercises during the class (individual exercise) (K1, K2, K3, S1, S2, S3, and S4)
- Group work with presentations (cooperative learning) (V1, V2, and V3)
- Self-learning (S1, S2, S3, S4, V1 and V2)
- Practical work ((S1, S2, S3, S4 ,V1, V2 and V3)

## 6. Assessment Methods for program learning outcomes.

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

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

Evaluation will be done based on the following: -

- Activities during lectures (classroom participation) (direct and indirect): (K3, S1, S2, S3, S4 and V1)

- Homework Assignments (direct method): (K1, K2, K3, S1, S2, S3, S4 and V1)
- Quizzes (direct method): (K1, K2, K3, S1, S2, S3)
- Written examinations (direct method): (K1, K2, K3, S1, S2, S3, S4)
- Laboratory reports. (In case of practical courses) (direct method): (S3, S4, V1, V2, and V3)
- Oral examinations and presentations (direct and indirect): (V1, V2, and V3)
- Problem-solving exercises (direct method): ((K3, S1, S2, S3, S4)
- Report presentation (direct and indirect): (V1, V2, and V3)
- Essay (direct and indirect): (V1, V2, and V3)
- Fieldwork reports (in case of field training course) (direct and indirect): (S3, S4, V1, V2, and V3)
- Seminar evaluation (direct and indirect): (S3, S4, V1, V2, and V3)
- Practical test (direct method): (S3, S4, V1, V2, and V3)
- Surveys (direct and indirect): (S3, S4, V1, V2, and V3)
- Interviews (direct and indirect): (V1, V2, and V3)
- Evaluation performance: (V1, V2, and V3)

## D. Student Admission and Support:

### 1. Student Admission Requirements

The students should fulfill the admission requirements of the university which illustrated at the following link:

http://www.ut.edu.sa/ar/Deanship/dar/Documents/DG451.pdf

in addition to the requirements declared in the above link, for admission to the chemistry program:

1. The student must be free of movement disabilities that may cause him danger in the laboratory.
2. The student must be free of visual impairment so that he can conduct practical experiments and obtain correct conclusions.
3. The student must be free of mental disabilities.

### 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).

https://www.ut.edu.sa/ar/Deanship/dar/Documents/Student%20Guide%20443.pdf

### 3. Student Counseling Services

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

- The students are distributed among the faculty members, and this is announced on the college website, notice boards, and on the offices of the faculty members.
- Faculty members study students and classify problems (from low GPA, warnings, other personal problems)
- Faculty members meet with students, study their problems and work on solving them.
- The faculty member writes a set of reports on the forms prepared by the Guidance Unit and submits them to the unit.
- The Academic Guidance Unit makes a comprehensive report that is submitted to the Vice Dean for Academic Affairs to solve the problems and present it to the Dean of the College and take the necessary actions.
- The Training Unit, in conjunction with the Student Club and the Graduate Follow-up Unit, holds training courses for students for psychological and social preparation
- The students complaints are posted to the academic Guidance or directly to the vice Dean or the Dean of the college to take the necessary actions towards it.

## 4. Special Support

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

**Low achievers**

- A student support system –E-register- is available to identify tripped students. Moreover, a committee for tripped students was established by FSUT.
- The department of Chemistry constitutes a counseling committee to investigate reasons for this poor performance and provide the necessary support for the students.
- The department of Chemistry provides a supportive education program for students with poor academic performance to improve their academic level.

**Disabled**

- Providing electric lifts.
- Providing private parking.
- Equipping the stairs that help them climb their steps.

**Gifted and Talented**

Talented students will be advised to communicate with the Creativity and Talent Unit at university. The deanship of student affairs launched the program " innovators" in order to investigate talented students as well as to support and motivate them. Also, provide them with special training courses.

## E. Faculty and Administrative Staff:

### 1. Needed Teaching and Administrative Staff

| Academic Rank | Specialty | | Special Requirements / Skills (if any) | Required Numbers | | |
|---|---|---|---|---|---|---|
| | General | Specific | | M | F | T |
| Professor | Chemistry | Chemistry | • Using different effective teaching methods and effectively communicate with students.<br>• Self-assurance Proficiency in using modern technologies.<br>Have a great knowledge and sufficient experience about environmental problems and sustainability | - | 1 | 1 |
| Associate Professor | Chemistry | **Chemistry** | • Using different effective teaching methods and effectively communicate with students.<br>• Self-assurance Proficiency in using modern technologies.<br>Have a great knowledge and sufficient experience about environmental problems and sustainability | 8 | 6 | 14 |
| Assistant Professor | Chemistry | **Chemistry** | • Using different effective teaching methods and effectively communicate with students.<br>• Self-assurance Proficiency in using modern technologies.<br>Have a great knowledge and sufficient experience about environmental problems and sustainability | 2 | 13 | 15 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lecturer | Chemistry | Chemistry | • Using different effective teaching methods and effectively communicate with students.<br>• Self-assurance Proficiency in using modern technologies.<br>Have a great knowledge and sufficient experience about environmental problems and sustainability | 1 | 3 | 4 |
| Teaching Assistant | Chemistry | Chemistry | • Using different effective teaching methods and effectively communicate with students.<br>• Self-assurance Proficiency in using modern technologies.<br>Have a great knowledge and sufficient experience about environmental problems and sustainability | 2 | 1 | 3 |
| Technicians and Laboratory Assistant | Chemistry | Chemistry | • To have a lot of knowledge and information related to the field in which they will be helping.<br>• Self-assurance<br>Proficiency in using modern technologies.<br>Knowledge of dealing with devices in the laboratory | 4 | 5 | 9 |
| Administrative and Supportive Staff | Chemistry | Chemistry | To have a lot of knowledge and information related to the field that he will manage.<br>Self-assurance | 1 | 1 | 2 |
| 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.)

- The choice of these learning resources is according to a reference comparison with that course teaches in science in the top 200 university according to Q.S ranking.
- The department council submits a recommendation to the deanship of the college and then to the university to provide the selected books and references to students through the college library or the student service office.
- The other learning resources like electronic books and the specialized web sites were given to the student through the staff during lectures.
- Saudi electronic library.

## 2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

Library of the faculty, 5 laboratories one of them is specialized in collecting and analyze environmental samples, medical facilities, classrooms.

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

(According to the nature of the program)

All quality assurance and lab safety tools will be applied in order to maintain the safety of the environment. Lab safety signs and tools will be available to maintain safety.

Also, the department is careful and makes special leaflets available for new students to give them basic information about safety in laboratories within the department of all kinds.

# G. Program Quality Assurance:

## 1. Program Quality Assurance System

Provide a link to the quality assurance manual.

Program quality assurance Guide:

https://drive.google.com/drive/folders/1u7DsO7Oh1RbkweTt-DeEJ3m_VUyP9-nB

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

The first step: is data collection: students and alumni, employers' questionnaires, staff faculty, course reports, personal interviews with students and members / measurement of performance indicators Step 2: Study and analyze the data: Presented to the committee of higher studies and quality and discuss

the issues and propose possible solutions

Step 3: Develop an implementation plan for the solutions proposed by a competent committee

| Activity name | Start of semester | End of semester | annually | Bi-annual | Every 5 years |
|---|---|---|---|---|---|
| Program level activities | | | | | |
| Program specification review | | | | | √ |
| Course evaluation surveys | | √ | | | |
| Course report preparation | | √ | | | |
| Course recommendation reporting | | √ | | | √ |
| Course file preparation and submission | | √ | | | |
| Employer evaluation survey | | √ | | | |
| Alumni evaluation survey | | | √ | | |
| Program SWOT analysis preparation and reporting | | | | | √ |
| Program KPI report preparation and analysis | | | √ | | |
| Annual program report preparation | | | √ | | |
| Annual program report revision | | | √ | | |
| Recommendations conclusion | | | √ | | |
| Program self-study report development | | | | | √ |
| Course report | | √ | | | |
| Course recommendations report | √ | | | | |
| Course file | | √ | | | |
| Student evaluation surveys | | √ | | | |
| External program assessment | | | | √ | |

- Completing course specifications and program specification according to the National Center for Academic Accreditation and Assessment templates.
- The faculty member, in coordination with the course coordinator, is obligated to teach the approved course specification, and it is notified to the students at the beginning of the semester with an explanation of its objectives, contents, vocabulary and philosophy, the teaching strategies used, and the various assessment strategies used.
- Commitment to unify the course specification in all branches and programs that offer the course in both male and female sections.
- Commitment to unify the final exams for each course in the branches and main campus that offer the course in both male and female sections.

- After completing the course teaching, the faculty member prepares the course report according to NCAAA form in coordination with the course coordinator to prepare a unified course report (includes both male and female students).
- Unified course reports combining the branch and the main campus of the program are compiled to prepare the program report in coordination with the program and course coordinators to prepare a unified program report (includes both male and female sections).
- Submits the annual report to the department council for review and approval.
- The annual report is submitted to the College Council for review and approval.
- Annual program reports are submitted to the Deanship of Development and Quality for internal revision by the Permanent Committee of Internal Revision, where the annual reports of programs and academic courses are reviewed, and improvement points are studied.

Making reference comparisons with similar courses in similar programs in other colleges, where the review is within the program plan after the graduation of the first batch.

Finally, The Quality Committee directs the recommendations for improvement to all the program established branches and locations.

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

- Unifying course specification, references, and teaching strategies
- Unifying final and periodic exams.

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

The plan for evaluating the learning outcomes of the program and the mechanisms for using its results in the development processes are as follows:

- To ensure the quality and continuous improvement of the program, the learning outcomes are evaluated and measured periodically based on the criteria that indicate the quality of performance according to the NCAAA program.
- The faculty members and staff responsible for the various activities in the program evaluate the level of performance according to these criteria, based on appropriate evidences, with support this with performance indicators and benchmarking with other programs of a high level of quality, especially in areas of great importance. This self-evaluation is supported by an independent opinion by an reviewers or independent reviewers from outside the institution. To enhance the credibility, positioning and accuracy of the evaluation.

- Learning outcomes are evaluated and measured periodically according to the NCAAA program, for each course separately, each semester and every year for the program as a whole.

In order to assess the quality of the program outputs as well as the rates of achieving the targeted learning outcomes and the extent to which the program objectives are achieved, we will take the following procedure:

1- Reviewing the evaluation of the regular students for the courses and the academic program.
2- Reviewing the graduate students' evaluation of the academic courses and program.
3- Reviewing employers' evaluation of graduates' performance.
4- Internal review (self-evaluation) - external review of courses.
5- To enroll faculty members in training courses and workshops to provide them with teaching and professional skills and experiences.
6- Taking the opinion of an external reviewers of the program, identifying the strengths and weaknesses, making recommendations for improvement, and making plans to implement these recommendations and their rate of achievement.
7- Distributing questionnaires to employers and the target community of the program.

Organizing periodic meetings with employers and the target community of the program. Based on all of the above, an improvement plan is prepared and circulated to the stakeholders, where the evaluation processes are used permanently for continuous improvement of the program and feedback on continuous improvement of the program.

## 5. Program Evaluation Matrix

| Evaluation Areas/Aspects | Evaluation Sources/References | Evaluation Methods | Evaluation Time |
|---|---|---|---|
| Leadership | Faculty members, administrators, staff, independent auditor | Interviews Surveys | Beginning of semesters and end of academic year |
| Effectiveness of teaching and evaluation | Students, alumni Independent Auditor | Surveys | End of academic year |
| Learning resources | Students Independent Auditor | Surveys visits | End of academic year |
| Services | Students, graduates, alumni, faculty | Visits Surveys | Beginning of semesters and end of academic year |
| | | | |

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

## 6. Program KPIs*

The period to achieve the target (____) year(s).

| No. | KPIs Code | KPIs | Targeted Level | Measurement Methods | Measurement Time |
|---|---|---|---|---|---|
| 1 | KPI-P-1 | Students' Evaluation of Quality of learning experience in the Program | **3.5** | **Survey** | **Every academic year** |
| 2 | KPI-P-2 | Students' evaluation of the quality of the courses | **3.5** | **Survey** | Every academic year |
| 3 | KPI-P-3 | Completion rate | **60%** | **Direct observation** | Every academic year |
| 4 | KPI-P-4 | First-year students retention rate | **60%** | **Direct observation** | Every academic year |
| 5 | KPI-P-5 | Students' performance in the professional and/or national examinations | ----- | **Direct observation** | Every academic year |
| 6 | KPI-P-6 | Graduates' employability and enrolment in postgraduate programs | 1. employed within 12 months 50%<br>2. enrolled in postgraduate programs 20% | **Direct observation** | Every academic year |
| 7 | KPI-P-7 | Employers' evaluation of the program graduates proficiency | **3.5** | **Survey** | Every academic year |
| 8 | KPI-P-8 | Ratio of students to teaching staff | **5:1** | **Direct observation** | Every academic year |

| No. | KPIs Code | KPIs | Targeted Level | Measurement Methods | Measurement Time |
|---|---|---|---|---|---|
| 9 | KPI-P-9 | Percentage of publications of faculty members | 70% | Direct observation | Every academic year |
| 10 | KPI-P-10 | Rate of published research per faculty member | 2:1 | Direct observation | Every academic year |
| 11 | KPI-P-11 | Citations rate in refereed journals per faculty member | 1:1 | Direct observation | Every academic year |

* including KPIs required by NCAAA

## H. Specification Approval Data:

| | |
|---|---|
| COUNCIL /COMMITTEE | CHEMISTRY DEPARTMENT COUNCIL NO. (27) |
| REFERENCE NO. | 18416, ADOPTED ON DATE JUNE 14TH 2023 |
| DATE | HELD ON WEDNESDAY 23/11/1444 |