Program Specification

(Postgraduate Programs)

Program Name: **Executive Master of Forensic Science**
Program Code (per the Saudi Standard Classification of Educational Levels and Specializations): **051206**
Qualification Level: **7**
Department: **Biology and Chemistry (joint program)**
College: **Science**
Institution: **Imam Mohammad Ibn Saud Islamic University (IMSIU)**
Program Specification: New ☐ updated* ☒
Last Review Date: **29/9/2024**

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information:

1. Program's Main Location:
Imam Mohammad Ibn Saud Islamic University (IMSIU): Main campus for the Male Section King Abdullah City for the Female Section

2. Branches Offering the Program (if any):
None

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:
None

6. Professions/jobs for which students are qualified:
2 Specialists 26 Specialists in law, sociology and culture 261 Specialists in law 2611 Lawyers 261104 Litigation specialists 21 Specialists in science and engineering 213 Specialists in life sciences 2131 Specialists in biology, plants, animals and those related to them 213101 Biologists 213102 Biochemists 213103 Biophysicists 213104 Biotechnology specialists 213105 Plant scientists 213106 Zoologists 213107 Marine biologists 213108 Entomologists 213109 Pharmacologists 213110 Geneticists

213111 Embryologists
213112 Bacteriologists
213113 Epidemiologists
213114 Microbiologists
213115 Medical Laboratory Technicians
21311 Clinical Laboratory Technicians

21 Science and Engineering Specialists
211 Physics and Earth Science Specialists
2113 Chemists
211301 Chemists
211302 Industrial Chemists
211303 Pharmaceutical Science Specialists
211304 Petrochemical Chemists

3 Technicians and Associate Specialists
31 Associate science and engineering professionals
311 Physical science and engineering technicians
3119 Physical science and engineering technicians not elsewhere classified
311901 Forensic science technicians

7. Relevant occupational/ Professional sectors:

Field (01): Education
Field (05): Natural Sciences
Field (09): Health and Welfare

8. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
Not Applicable		

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

Exit points/Awarded degree	Credit hours
Not Applicable	

10. Total credit hours: (42)

B. Mission, Goals, and Program Learning Outcomes

1. Program Mission:
Providing graduates with in-depth knowledge and scientific research skills in criminal sciences-related fields for preparing and qualifying distinguished cadres in criminal sciences, to meet the labor market's needs, thereby serving the community

2. Program Goals:
G1. Providing the graduates with an attractive environment for science, knowledge, and targeted training in criminal sciences. G2. Enhancing the capabilities of the Graduates knowledge in forensic research tools by studying an Executive master's degree in criminal sciences. G3. Qualifying the graduates and employees in criminal work investigations on the use of biotechnology and bioinformatics to solve judicial problems in extracting forensic evidence. G4. Providing the labor market with the specialist graduates in criminal sciences to contribute to solving criminal cases. G5. Keeping the graduates abreast of scientific progress and its various applications in the fields of criminal sciences. G6. Increasing and refining the graduates' competitive ability, knowledge and skill qualification with basic skills in this criminal field of societal importance.

3. Program Learning Outcomes:*	
Knowledge and Understanding:	
K1	Recall advanced principles and knowledge in Biology and Chemistry related to the specialization of Forensic Evidence with a comprehensive and consistent deep understanding.
K2	Describe a required understanding of the advanced concepts about forensic evidence in relevant topics and fields that serve the career and job.
K3	Outline the required information and knowledge on the collection and preservation of criminal samples.
K4	List the essential processes and procedures for the investigation in forensic evidence and present it inclusively.
Skills:	
S1	Analyze criminal samples and evidences to make decisions based on the knowledge gained.
S2	Apply instrumental analysis, including highly sensitive equipment with full capability to analyze forensic evidence samples, and forensic evidence career-related problems.
S3	Compare biological, toxicological, and chemical constituents and all related materials in laboratories and field as forensic evidence.
S4	Design tools for monitoring and evaluating forensic evidence in criminal cases with a strategic perspective using IT and Bio-Statistical models.

Values, Autonomy, and Responsibility:	
V1	Demonstrate the profession's ethics by applying forensic evidence with practical written and oral analysis and conclusion, applying IT, Bio-Statistical models, and Data analysis, and Performing communications to integrity.
V2	Appraise effectively independent or in professional groups and make decisions, develop knowledge, enhance society's quality, and contribute to its advancement, by performing scenarios related to forensic cases to simulate the counterparts.

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

C. Curriculum:

1. Curriculum Structure:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Course	Required	13	38	90.5%
	Elective	0	0	0
Graduation Project (if any)	Required	1	4	9.5%
Total		14	42	100%

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

2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	BIO 6101	Forensic Biology	Required	-	3	Program
	BIO 6102	Forensic Genetics	Required	-	3	Program
	CHM 6138	Instrumental Analysis & Toxicology	Required	-	3	Program
	CHM 6151	Introduction in Forensic Chemistry	Required	-	3	Program
Level 2	BIO 6105	Forensic Biological Instruments Analysis	Required	-	3	Program
	BIO 6107	Molecular Biology of Forensic DNA Analysis	Required	-	3	Program
	CHM 6139	Forensic Toxicology and Drug Analysis	Required	-	3	Program
	STA 6117	Statistics for Forensic Scientists	Required	-	3	Program
Level 3	BIO 6209	Forensic Serology and DNA Fingerprinting	Required	-	3	Program
	BIO 6210	Entomology and Microbial Forensic	Required	-	2	Program
	BIO 6211	Anatomy and Physiology	Required	-	3	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	BIO 6291	The Scientific Method in Forensic Science	Required	BIO 6101 BIO 6105 CHM 6138 CHM 6151 STA 6117	3	Program
Level 4	CHM 6231	Advanced Analytical Chemistry	Required		3	Program
	BIO 6299	Research Project	Required	BIO 6291	4	Program

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

3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (TPG-151)

Course Specifications

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with the program's courses according to the desired performance levels.
(I = Introduced, P = Practiced, M = Mastered).

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility	
	K1	K2	K3	K4	S1	S2	S3	S4	V1	V2
BIO 6101	I	I	I	I	I	I	I	I	I	I
BIO 6102	I	I	I	I	I	I	I	I	I	I
CHM 6138	I	I	I	I	I	I	I	I	I	I
CHM 6151	I	I	I	I	I	I	I	I	I	I
BIO 6105	P	I	P	P	I	P	I	P	I	I
BIO 6107	I	P	P	I	P	I	P	I	P	I
CHM 6139	I	P	I	P	P	I	P	I	I	P
STA 6117	I	I	I	I	I	I	I	I	I	I
BIO 6209	P	M	P	M	M	P	M	P	M	P
BIO 6210	M	P	P	M	P	M	P	M	P	M
BIO 6211	M	P	M	P	M	P	M	P	M	P
BIO 6291	M	P	M	P	M	P	M	P	P	M
CHM 6231	M	M	M	M	M	M	M	M	M	M
BIO 6299	M	M	M	M	M	M	M	M	M	M

* Add a separate 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's learning outcomes in all areas.

To achieve program learning outcomes, a variety of teaching and learning strategies, such as lectures, tutorials, and laboratory sessions, will be utilized alongside curricular and extra-curricular activities. This approach aims to create an engaging learning environment that connects theoretical knowledge with real-world applications. By promoting collaboration, critical thinking, and ethical engagement, the program prepares graduates to address complex challenges and make meaningful contributions to their communities and industries. This comprehensive strategy ensures students are equipped to meet the Program Learning Outcomes in knowledge, skills, values, autonomy, and responsibility.

Knowledge and Understanding strategies include Interactive Lecture, Discussion and Dialogue, Mind Maps, Concept Maps, Standard Method, Inductive Method, Self-Learning, Cooperative Learning, and Field Visits.

Skills strategies include Interactive lecture, Discussion and dialogue/inquiry, Standard and inductive method, Problem solving, Brainstorming, Discovery learning, Flipped classroom, Cooperative learning, Case study, Role playing, Field visits, Presentation activities, Self-learning, Cognitive journeys, Practical Application, Microteaching, Modeling, Simulation, and Project-Based Learning.

Values, Autonomy, and Responsibility strategies include Modeling, Dialogue and discussion, Self-learning, and Collaborative learning.

5.1. Teaching and Learning Strategies

5.1.1. Active Learning Techniques

- Collaborative Group Projects: Students work in diverse teams to tackle complex forensic science problems. Each project requires them to analyze a real-world issue and develop solutions using forensic science concepts. This promotes analytical and problem-solving skills while enhancing teamwork and communication (V2).
- Peer Teaching Sessions: Organize structured peer-led review sessions where students take turns explaining key concepts to their classmates. This method not only reinforces their understanding but also hones their ability to communicate forensic science ideas clearly and accurately (S3).

5.1.2. Project-Based Learning

- Real-World Problem Solving: Assign projects that require students to design forensic science models addressing current societal challenges. This approach integrates theoretical knowledge with practical application (S4, V1).
- Interdisciplinary Research Projects: Encourage students to collaborate with peers from other disciplines (e.g., medical and pharmaceutical sciences) to explore how forensic science can be applied across various fields, illustrating its versatility (V2).

5.1.3 Technology Integration

- Software Training Workshops: Offer hands-on workshops on using forensic science software tools. Students learn to apply these tools for data analysis, simulations, and visualizing forensic science concepts, thereby developing their proficiency in utilizing technology (S4).

- Online Collaboration Platforms: Utilize platforms such as Google Workspace or Microsoft Teams to facilitate group work and discussions. Students can collaborate on projects, share resources, and provide peer feedback, enhancing their engagement and teamwork skills (S4).

5.1.4. Inquiry-Based Learning

- Research Assignments: Assign students to conduct literature searches on specific forensic science topics, requiring them to critically appraise sources and synthesize findings into a cohesive report. This builds their research skills and ability to analyze diverse materials (K1, K3, S1).
- Problem Posing and Exploration: Create opportunities for students to formulate their own forensic science questions based on real-world scenarios. This approach encourages independent thinking and critical analysis, allowing them to explore topics that pique their interest (K2, K4, S2).

5.2. Curricular Activities

5.2. 1. Workshops and Seminars

- Guest Lectures and Industry Panels: Invite professionals from various fields to share their experiences and discuss how they use forensic science in their careers, including forensic science education subjects. This exposure helps students understand the relevance of their studies and the ethical considerations involved in applying forensic science (V1).
- Skill Development Workshops: Provide workshops focused on specific forensic science skills. These sessions can include case studies that prompt students to consider the societal impact of their forensic science work (V1, V2).

5.2. 2. Field Experience

- Field Experience Opportunities: Collaborate with local businesses and research institutions to provide Field training for students. Internships allow students to apply forensic science theories in practical settings, gain experience, and develop professional ethics (K2, V1).
- Field Trips: Organize visits to companies or research centers where forensic science plays a crucial role. These visits help students see the practical application of their studies and foster connections with potential employers (K2, S3).

5.2. 3. Assessment and Feedback

- Formative Assessments: Implement regular quizzes, homework, exams, presentations, and project reviews to provide ongoing feedback to students. This helps them assess their understanding and encourages self-evaluation of their learning (K1-K4).
- Portfolio Development: Require students to create a portfolio documenting their projects, research papers, and reflections on their learning journey. This portfolio not only showcases their skills but also encourages reflective practice (K1-K4).

5.3. Extra-Curricular Activities

5.3.1. Science Clubs

- Study Groups and Tutoring Programs: Establish student-led study groups and peer tutoring sessions. These initiatives create a supportive learning environment where

students can collaborate on challenging topics and help each other succeed (V2).

- Outreach Initiatives: Organize community outreach programs, such as forensic science tutoring for local high school students or workshops for underrepresented groups. This promotes responsible citizenship and ethical engagement with the community (V1, V2).

5.3.2. Conferences and Competitions or national specific exam

- Participation in forensic science Competitions: Encourage students to enter national and international forensic science competitions, fostering their analytical and creative problem-solving abilities (S4).
- Academic Conferences: Support students in attending and presenting at academic conferences, allowing them to share their research, network with professionals, and improve their communication skills (S2).

5.3.3. Leadership Development

- Mentorship Programs: Pair students with faculty or industry mentors who can provide guidance on academic and career choices. This helps students develop a sense of responsibility and ethical decision-making (V1).
- Leadership Roles in Group Projects: Assign students' roles within their project teams that allow them to take on leadership responsibilities. This encourages adaptability and the development of leadership skills necessary for professional success (V2).

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).

Program learning outcomes assessment methods are classified as direct (where actual student behavior is measured or assessed), and indirect (which include activities that gather impressions or opinions about the program and/or its learning goals). Direct assessment methods require students to represent, produce or demonstrate their learning. Examples of direct assessment include but are not limited to the following: Course-embedded assignments, Presentations, Performances or Projects, Capstone experiences, Portfolios, Senior theses, and Comprehensive exams, certification or licensure exams. Indirect assessment methods capture information about students' perceptions about their learning experiences and attitudes toward the learning processes. Examples of indirect assessment include but are not limited to the following: Surveys, such as satisfaction, attitudinal, feedback, employer or alumni perceptions, Focus groups, Exit interviews, Self-evaluations, such as student or alumni self-ratings of learning, and External reviews.

6.1. Direct Assessment Methods

6.1.1. Exams and Quizzes

Midterm and Final Exams: Each semester includes two midterms and a final exam. These assessments tests students' understanding of fundamental principles of forensic science and their ability to articulate forensic science concepts and apply them in various contexts. The

exams consist of a mix of multiple-choice questions, problem-solving exercises, and theoretical questions, ensuring comprehensive coverage of the material (K1-K4).
Weekly homework/Quizzes: Short quizzes are administered at the end of each week to evaluate students' grasp of recent topics. These quizzes focus on analytical skills and problem-solving, helping identify areas that may require further review before major exams (K1-K4).

6.1.2. Projects and Presentations
Forensic science-related Projects: In the last semester of Year 4, students will work on projects that require them to conduct scientific research addressing real-world problems. Each project will culminate in a presentation, allowing students to demonstrate their communication skills and their ability to apply theoretical knowledge in practical scenarios (S1, S2, S4).
Research Papers: Assigned in the last semester of Year 4, students will draft a research paper that involves conducting literature searches, critically appraising sources, and synthesizing findings related to a specific forensic science topic or application. This assessment will gauge their research abilities and understanding of the historical context and applications of forensic science (S3, S4).

6.1.3. Laboratory Assessments
Forensic science Software Labs: Throughout the program, students will participate in lab sessions focused on using forensic science software tools. Assessments will include practical assignments where students demonstrate their ability to utilize these tools for data analysis, simulations, and data visualization. Lab reports will be graded based on accuracy, creativity, and clarity of presentation (S4).

6.1.4. Peer and Self-Assessment
Peer Reviews: Throughout the program, students will engage in peer reviews for group projects and presentations. This method encourages collaborative learning and accountability while allowing students to practice critical evaluation (V2).
Self-Reflection Journals: Students will maintain journals (personal records) throughout the program to document their learning experiences, ethical considerations, and self-evaluations of their performance. These journals will be submitted at the end of each academic year for assessment, focusing on personal growth and reflection (V1).

6.2. Indirect Assessment Methods

6.2.1. Surveys and Questionnaires
Student Feedback Surveys: At the end of each semester, students will complete surveys assessing their learning experiences, perceived skill development, and the effectiveness of instructional methods. The feedback collected will be used to adjust the curriculum and teaching strategies. In addition, they will assess their ability regarding all PLOs (K1-K4, S1-S4).
Exit Surveys: Conducted during graduation, these surveys will ask students to reflect on their overall educational experience and how well the program prepared them for their careers, particularly regarding ethical behavior and their ability to self-evaluate (V1, V2).

6.2.2. Focus Groups
Alumni Focus Groups: Organized every two years, these focus groups will involve recent

graduates discussing the relevance of the skills and knowledge gained in the program to their professional lives. Insights from these discussions will help evaluate the program's effectiveness and inform future curriculum development (K1-K4, S1-S4).

6.2.3. Course Evaluations

End-of-Semester Evaluations: Conducted regularly at the end of each semester, these evaluations will assess course content, teaching effectiveness, and overall student satisfaction. The results will provide indirect insights into the achievement of learning outcomes and inform potential improvements (K1-K4).

6.3. Assessment Plan Overview Cycle Structure

6.3.1. Assessment Frequency:

Each PLO will be assessed at least twice throughout the program, with one additional assessment conducted in related degrees, ensuring a comprehensive evaluation including mapping PLOs to courses:

Year 1: Introductory courses will assess foundational knowledge (K1-K4) and analytical skills (S1, S2). Direct assessments will include quizzes, exams, and a group project on forensic science concepts.

Year 2: Intermediate courses will evaluate forensic science skills (S1-S4). Assessments will include projects and lab assignments.

Year 3: Advanced courses focusing on forensic science methods and ethical considerations through research papers and peer evaluations (V1).

Year 4: The Capstone course BIO 1499 will assess literature search skills (S1, S2, S4) and will integrate knowledge and skills from the entire program, requiring students to complete a comprehensive project that synthesizes their learning. This final assessment will evaluate communication (V1), leadership in team settings (V2), and self-evaluation (V2) through presentations and reports.

Field Experience Assessment

In the program's final year, students must complete a field experience or internship related to their area of study. This practical component will allow students to apply their forensic science knowledge in real-world settings, reinforcing their understanding and enhancing their skill set (S1-S4, V1, V2).

6.3.2. Field Experience Evaluation:

Students will be assessed based on their performance in the field training (BIO 1497), including their ability to apply forensic science concepts to solve real-world problems. Evaluations will include supervisor assessments, which will focus on the student's analytical skills, problem-solving abilities, and ethical conduct (V1). Students will submit a final report detailing their internship experiences, the projects they worked on, and the forensic science techniques they employed. This report will be graded on clarity, relevance, and the integration of learned concepts.

6.3.2. Reflective Analysis:

Students will also submit a reflective analysis that evaluates their personal growth, learning outcomes from the experience, and their ability to critically assess their contributions and

responsibilities (V2). This analysis will encourage students to connect their practical experiences back to the theoretical frameworks studied throughout the program.

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)

Not applicable

2. Scientific Supervision:

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

Not applicable

3. Thesis Defense/Examination:

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

Not applicable

E. Student Admission and Support:

1. Student Admission Requirements:

Admission into the program will be granted based on the Unified Regulations for Postgraduate Studies in Saudi Universities and their Executive Rules at Imam Muhammad ibn Saud Islamic University

Specializations required for admission of the students into the program

Bachelor's degree in the following specializations:

1. Biology and related specializations.
2. Chemistry and related specializations.
3. Biochemistry and related specializations.
4. Pharmacology and applied medical sciences and related specializations.
5. Criminal law specialization.
6. Security sciences.

The joint committee of the program may review the files of applicants, whether from within or outside the above specializations, and determine what it deems appropriate for direct admission or not, and determine the supplementary courses if necessary.

If the applicant is from outside the above specializations, the following supplementary courses

are required for the student's admission:

1. BIO 1101 General Biology (4 credits)
2. BIO 1231 Genetics (4 credits)
3. BIO 1237 Biochemistry (4 credits)
4. CHM 1101 General Chemistry (4 credits)
5. CHM 1121 Organic Chemistry (4 credits)
6. CHM 1332 Instrumental analysis (4 credits)

English proficiency level

Standardized Test of English Proficiency (STEP): 67
International English Language Testing System (IELTS): 4
Test of English as a Foreign Language (TOEFL): IBT: 45, CBT: 133, PBT: 450

Admission criteria approved by the University Council

Standard 1: Grade point average (GPA) in undergraduate degree: 50%
Standard 2: Undergraduates Aptitude test: 25%
Standard 3: Written test: 15%
Standard 4: Oral test (interview): 10%

Admission criteria according to the department's desire

Standard 1: Grade point average (GPA) in undergraduate degree: 50%
Standard 2: Undergraduates Aptitude test: 25%
Standard 3: Written test: 15%
Standard 4: Oral test (interview): 10%

2. Guidance and Orientation Programs for New Students:

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

The Executive Master of Forensic Science Program provides a comprehensive orientation for new students, conducting an orientation week at the commencement of each semester. During this week, students can meet fellow newcomers, current student leaders, faculty, and staff; familiarize themselves with the campus; learn about student services and academic programs; and address their individual needs. They receive QR codes of university policies and brochures designed to enhance their understanding of the university environment, including program, services, facilities, rights, and responsibilities. In addition to the orientation week, an orientation meeting is held at the beginning of each semester, attended by all new students and key faculty members, including the college's dean, program manager and academic advisor. This meeting serves to convey essential academic information and provide a forum for students to pose inquiries. To further assist students with exceptional needs, the program offers tailored support through specialized academic advising sessions that focus on individualized learning strategies and effective resource utilization. A peer mentoring system is established to connect new

students with upperclassmen who can offer guidance specific to coursework and project challenges. Additionally, workshops on time management and study techniques are organized to facilitate navigation of the rigorous curriculum. Finally, access to specialized tutoring services ensures that students facing unique academic challenges receive the ultimate support necessary for their success.

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 Executive Master of Forensic Science Program offers specialized counseling services that address academic, professional, psychological, and social needs, tailored specifically for the program's students.

Academic Counseling: In addition to standard institutional support, students have access to focused academic counseling sessions that cater to the unique challenges of the forensic science curriculum. Advisors provide targeted strategies for managing coursework and research projects.

Professional Development: Students receive personalized career counseling that includes workshops on industry trends specific to forensic science fields. This program also facilitates networking opportunities with professionals in the industry.

Psychological Support: The program offers dedicated mental health resources, including workshops on stress management and resilience tailored to the demands of rigorous academic study, ensuring students can maintain their well-being.

Social Support Services: To foster a sense of community, the program organizes social events and peer support groups that are specifically designed for students within the Program, promoting collaboration and camaraderie.

4. Special Support:

(Low achievers, disabled, and talented students).

The Executive Master of Forensic Science Program (via the Head of the Department) and the University of Imam Mohammad Ibn Saud Islamic university provide care and support for the low achievers and the disabled students. Furthermore, the deanship for academic affairs has established a Center Special Needs Services (CSNS). As for the underachieving students, they are identified and provided with remedial programs to help them overcome the difficulties hindering their progress into the program. These students are distributed among the academic advisors at the department and are given due interest. They are met on a regular basis by their academic advisors who are asked by the academic advising coordinator (after the coordination with the CSNS) to make an appointment. During these meetings, the students are provided with advice, and guidance to help the students make decisions, related to registration decisions, deletion,

addition, grievance or even transfer to another program. Furthermore, the program has established the Student Academic Support Center (SASC) that offers several specialized courses for underachieving students, so that they can finish graduation requirements and catch up with their colleagues. These students are also offered several programs, lectures, and workshops on selected topics in which they can develop and strengthen their knowledge and language skills. This process of following up these underachieving students continues until their graduation. Both program and institution pay due attention to students of special needs (e.g., disabled students). They are provided with special care. Their special needs are considered for access to the building, especially during the exams. For the gifted and talented students, the university has established a department for creativity and talent to identify and to develop the abilities of these students named Department of Gifted and Talented Care. This is achieved through holding several extracurricular activities to attract and to encourage talented students to develop their abilities and gifts.

In addition, Psychological and Social Counseling Unit, at the Deanship of Student Affairs, is a vital part of the Deanship of Student Affairs, aiming to provide psychological and social support to students. The unit offers comprehensive services that contribute to enhancing the mental health and academic well-being of students.

F. 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	Biology	Molecular Biology and Genetics	Teaching and research experience	1	1	2
Associate Professor	Biology	Anatomy	Teaching and research experience	1	1	2
	Biology	Physiology	Teaching and research experience	1	1	2
	Biology	Toxicology and Drug Analysis	Teaching and research experience	1	1	2
	Chemistry	Analytical/ inorganic Chemistry	Teaching and research experience	1	1	2
	Chemistry	Biochemistry	Teaching and research experience	1	1	2
Assistant Professor	Biology	Microbiology	Teaching and	1	1	2

			research experience			
	Biology	Entomology	Teaching and research experience	1	1	2
Technicians and Laboratory Assistants	Educational Background	A bachelor's in biology or chemistry, or a related field	Technical skills for lab support	1	1	2
Administrative and Supportive Staff	Educational Background	Bachelor's degree in administration, Business, Education, or a related field.	Expertise in office management and coordination skills	1	0	1
Others (specify)	Higher Education Administration	Familiarity with quality assurance frameworks and standards	Expertise in quality assurance in higher education	1	0	1

G. Learning Resources, Facilities, and Equipment:

1. Learning Resources:

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

The planning and acquisition of these resources are vital for ensuring that students receive a comprehensive and effective education. The department follows a structured approach to identify and procure the necessary textbooks, reference materials, and Lab resources to support the curriculum.

Step 1: Course Committee Formation
For each course, faculty committees are responsible for:

- Course Description: Drafting a clear syllabus.
- Learning Resources:
  - Required Textbooks: Essential texts for course completion.
  - Essential References: appropriate Journals for understanding.
  - Recommended Materials: Additional readings and resources.
  - Electronic Materials: Utilizing platforms like Blackboard for course delivery.
- Other Resources: chemicals, reagents, and kits relevant to the course.

Step 2: Compilation and Submission Committees submit their resource lists to the Department Head for review.

Step 3: Approvals
The Department Council approves the resources, and the Department Head requests procurement through the University Central Library and IT Deanship.

Required Learning Resources

- **Textbooks:** Core and advanced texts in forensic science.
- **Reference Materials:** Access to journals, reports, and databases.
- **Electronic Resources:** Blackboard for course management and supplementary online courses.
- **Others:** chemicals, reagents, and kits for practical applications.

2. Facilities and Equipment:

(Library, laboratories, classrooms, etc.)

For the planning and acquisition of resources for library, laboratories, and classrooms, the department proceeds as follows:

Classrooms

- **Lecture Halls:** Equipped with audiovisual systems, smart boards, and comfortable seating for large groups.
- **Seminar Rooms:** Smaller classrooms for discussions, group work, and interactive learning sessions.

Laboratories

- **Forensic science Labs:** Equipped with Chemicals, Reagents, Kits, Beakers, Bunsen Burners, Burettes, Coverslips, Crucibles , Droppers, Filter Papers, Flasks, Forceps, Funnels, Hot Plates, Inoculating Loops, Litmus Papers, Measuring Cylinders, Petri Dishes, Pipettes, Spatulas, Test Tubes, Thermometers, Wash Bottles, Analytical Lab Balance, Autoclave, Centrifuge, Dissecting trays, Dyes, Forceps, Freezers, Hybridization oven, Incubators, Light Microscopes, Magnetic stirrers, Microcentrifuge, Petri dishes, Refrigerators, Scalpels, Shakers, Slides, Spectrophotometers, Thermomixers, Vortexers, Water baths, for practical applications.

Library

- **Forensic science Section:** A well-stocked section with textbooks, reference books, research journals, and online resources related to forensic science.
- **Study Areas:** Quiet study spaces, group study rooms, and access to computers for research and collaboration.
- **Online Database Access:** Subscriptions to journals and databases relevant to forensic science.

Collaboration Spaces

- **Group Study Rooms:** Spaces for students to collaborate on projects and study together.
- **Common Areas:** Informal areas for students to meet and discuss work, equipped with seating and whiteboards.

Technology and Equipment

- **Computers and Software:** Access to computers with necessary software for forensic science.
- **Projection and Audio-Visual Equipment:** For presentations and lectures.

Office Spaces

- **Faculty Offices:** Spaces for faculty members to meet with students, conduct research, and prepare course materials.
- **Administrative Offices:** For program coordinators and administrative staff to manage program logistics and student services.

Research Facilities

- **Research Labs:** Specialized spaces for faculty and senior students to conduct research (in particular, to complete the capstone research project BIO 1499), equipped with necessary tools and technologies.
- **Collaboration with External Institutions:** Access to local research institutions, businesses, and organizations for internships and applied projects and Field Training.

Online Learning Facilities

- **Learning Management System (LMS):** A robust platform (e.g., Blackboard) for delivering course materials, managing assessments, and facilitating online discussions.
- **Virtual Classrooms:** Tools for conducting online classes and webinars to support remote learning.

Extracurricular Spaces

- **Science Clubs:** Dedicated spaces for student organizations and extracurricular activities related to forensic science.
- **Event Spaces:** Areas for hosting guest lectures, workshops, and conferences.

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

(According to the nature of the program)

Procedures for a Healthy and Safe Learning Environment include:

- Physical Safety: Ergonomic classrooms, emergency plans, and equipment maintenance.
- Health and Well-Being: Access to mental health resources, wellness activities, and peer support.
- Inclusivity: Diversity training, anonymous feedback channels, and mentorship programs.
- Reporting Mechanisms: Designated contacts and simple incident reporting.
- Continuous Improvement: Regular surveys for feedback.

H. Program Quality Assurance:

1. Program Quality Assurance System:

Provide a link to the quality assurance manual.

The Quality Assurance Manual-College of Science is stated according to on SQMAA and SMQES that represent internal quality assessment processes. This system is carried out by Vice-Rectorate for Institutional Development and Community Engagement through the Deanship for Development and Quality. The procedures follow the directives of ETEC and related practical template and forms; see ETEC-Quality Documents and Accreditation Templates.

Program review and its development is periodically assessed through the following processes:

- Course reports are submitted to the program manager every semester.
- The appropriate teaching staff committee oversees assessment and modification.
- Prepare and monitor the annual program report.
- Conduct and analyze survey's opinion of the students about the courses and the program.
- Conduct and analyze survey's opinion of the employers about the program.
- Program manager reviews the proposals submitted by the previous committees and makes appropriate decision after approbation of the department council.
- Monitor a global review for the development of the program periodically every five years if necessary.

All the previous processes follow the Teaching\Learning Quality Assurance Process Diagram:

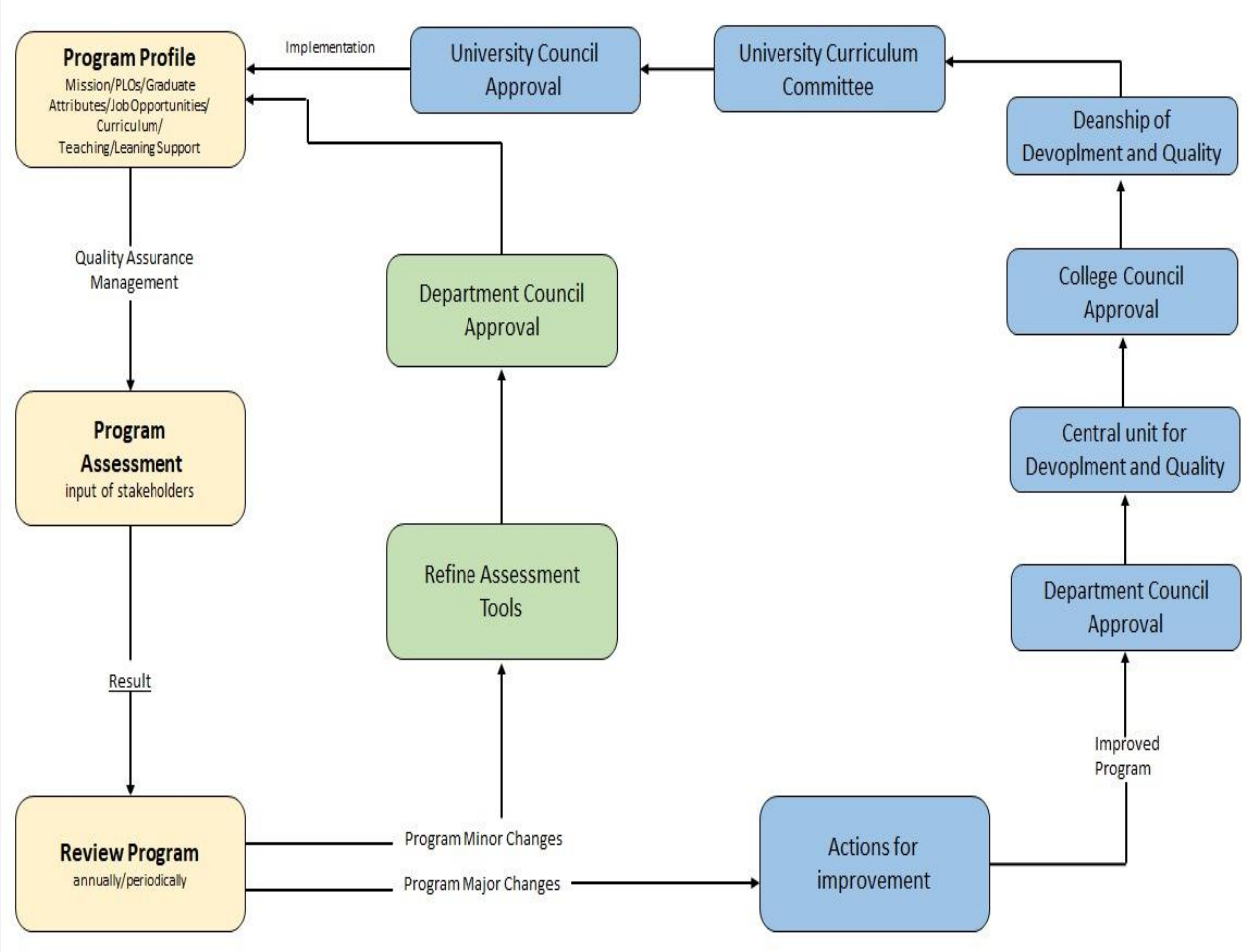

Figure 1: Teaching\Learning Quality Assurance Process Diagram

2. Program Quality Monitoring Procedures:

Axes

Axis One: Mission and Vision

This axis means that the program should have a clear, appropriate and consistent mission with the mission of the institution and the college/department, and support its implementation, and be directed to planning and decision-making, and the program's goals and plans are linked to it, and reviewed periodically.

Axis Two: Program Management and Quality Assurance

The program should have effective leadership that implements institutional systems, policies and regulations, and carries out planning, implementation, follow-up and activation of quality systems that achieve continuous development of its performance within a framework of integrity, transparency, justice and a supportive organizational climate for work.

Axis Three: Education and Learning

This axis means that the characteristics of graduates and learning outcomes in the program are precisely defined and consistent with the requirements of the National Qualifications Framework, academic and professional standards, and labor market requirements. The curriculum must be consistent with professional requirements, and the faculty must apply diverse and effective teaching and learning strategies and assessment methods that suit the different learning outcomes. The extent to which learning outcomes are achieved must be assessed through various means, and the results are used for continuous improvement.

Axis Four: Students

This axis means that the criteria and conditions for accepting students into the program must be clear and announced, and that they must be applied fairly. Information about the program and the requirements for completing the study must be available, and students must be informed of their rights and duties. The program must also provide effective guidance and counseling services and extracurricular and enrichment activities for its students. The program must work to evaluate the quality of all services and activities provided to its students, improve them, and follow up on its graduates.

Axis Five: Faculty and Staff

This axis means that the program must have sufficient numbers of qualified faculty members with the necessary competence and experience to carry out their responsibilities. The faculty must also be aware of academic and professional developments in their specializations, participate in scientific research, community service, and institutional development activities, and their performance must be evaluated according to specific standards, and the results must be used for development.

Axis Six: Learning Resources, Facilities, and Equipment

This axis means that learning resources, facilities, and equipment must be sufficient to meet the needs of the program and its courses, and be available to all beneficiaries in an appropriate

manner. The faculty and students must also participate in determining them based on needs, and evaluate their effectiveness.

Axis Seven: Scientific Research and Innovation

This axis means that the institution has specific plans for scientific research and innovation activities that reflect its strategic orientations and are consistent with its nature and mission. The institution provides the necessary resources for them, and provides appropriate support for faculty members, students, and other members of the institution to play their role in these activities, and works to follow up and document their activities, prepare periodic reports on them, and take the necessary measures for improvement and development.

Stages

Planning stage

It is the stage during which policies, procedures, and guides are planned, and strategic and operational plans are developed, and the necessary indicators are set to measure the objectives of these plans and performance levels.

Implementation and follow-up stage:

It is the stage during which policies, procedures, guides, and strategic and operational plans are implemented and their implementation is followed up as planned.

Review and improvement stage:

It is the stage during which policies, procedures, guides, and strategic plans, their objectives, performance indicators, operational plans, objectives, and performance indicators are reviewed, and improvement plans are developed based on the results of these reviews and periodic reports are prepared to measure performance and propose recommendations.

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

The key procedures to monitor the quality of courses in our program that are taught by other departments:

1. Course Approval and Evaluation

Prerequisite Checks: Review and approve course prerequisites to ensure they align with our program requirements.

Syllabus Review: Collaborate with other departments to assess syllabi for alignment with our learning objectives and educational standards.

2. Feedback Collection

Student Evaluations: Gather and analyze student evaluations to assess course quality, teaching effectiveness, and relevance to the curriculum.

Focus Groups: Conduct focus groups with students to obtain in-depth feedback about their experiences in these courses.

3. Monitoring and Assessment

Semester Course Evaluation (course report): Implement a regular review process to evaluate course effectiveness and alignment with program goals.

4. Data Analysis

Performance Metrics: Monitor student performance data, including grades and completion rates, to identify trends and areas needing improvement.

Impact Assessment: Analyze how well these courses prepare students for advanced coursework in forensic science.

5. Interdepartmental Collaboration

Regular Meetings: Hold meetings with relevant departments to discuss course quality, gather feedback, and collaborate on improvements.

Joint Committees: Participate in committees with other departments to address shared course offerings and ensure quality.

6. Continuous Improvement

Professional Development: Encourage faculty teaching these courses to participate in professional development opportunities.

Curriculum Updates: Work with departments to ensure course content is current and reflects industry trends and advancements.

7. Accreditation Compliance

Standards Alignment: Ensure that all monitored courses meet accreditation requirements and quality standards.

Documentation: Maintain detailed records of evaluations, feedback, and improvements made to courses.

8. Stakeholder Engagement

Advisory Board Input: Involve advisory boards in reviewing course relevance and quality.

Alumni Feedback: Seek insights from alumni regarding how well these courses prepared them for their careers or further studies.

4. Procedures adopted to ensure consistency between the program's sections (male and female sections, if any).

The Department adopted the following processes to ensure the consistency between male and female sections:

- Teaching in both sections is at the same time, using the same learning materials.
- Quizzes, midterm exams, Lab reports, Lab exam, and final exam are unified in both sections.

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

The assessment plan focuses on achieving a "Mastered" level of performance as a key indicator of success and to ensure that we continually refine and enhance our program to meet educational objectives effectively. This ongoing process consists of seven distinct phases designed to systematically assess and enhance program learning outcomes.

Phases of Assessment

Phase 1. Data-Collection Methodology: Utilize both direct and indirect methods to gather relevant data (as detailed in Section C.6).

Phase 2. Benefits and Drawbacks: Analyze the advantages and disadvantages of each data-collection method to ensure effectiveness.

Phase 3. Evaluation of Methods: Assess the appropriateness of the selected data-collection methods for the specific learning outcomes.

Phase 4. Data Collection: Implement the chosen methods to gather data systematically.

Phase 6. Evidence Interpretation: Analyze and interpret the collected data to evaluate performance against learning outcomes.

Phase 5. Reporting and Documentation: Compile and document findings, along with the analysis, to provide a comprehensive overview of results.

Phase 7. Improvement Identification: Use the insights gained from the assessment to pinpoint areas for program improvement and enhancement.

Continuous Improvement

At each cycle of assessment, we leverage the information obtained to document, analyze, and improve all components of the program. This process is guided by relevant key performance indicators (KPIs).

Program Learning Outcomes (PLOs) Assessment Time Plan

Domain	PLOs	2025-2026	2026-2027
Knowledge and Understanding	K1	✓	
	K2	✓	
	K3		✓
	K4		✓
Skills	S1	✓	
	S2	✓	

	S3		✓
	S4		✓
Values, Autonomy, and Responsibility	V1		✓
	V2		✓

Program Learning Outcomes (PLOs) Executive Plan

Domain	PLOs	Assessment Methods (Direct and Indirect)	Targeted Performance (%)	Implementation plan How? Who? When? Where?
Knowledge and Understanding	K1	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 80% of the CLO grade	How? Calculating students' pass rate in the BIO 6101, BIO 6102, CHM 6138 and CHM 6151 courses. Who? Course's coordinator. When? 1st year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	K2	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 80% of the CLO grade	How? Calculating students' pass rate in the BIO 6105, BIO 6107, CHM 6139 and STA 6117 courses. Who? Course's coordinator. When? 1st year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	K3	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 80% of the CLO grade	How? Calculating students' pass rate in the BIO 6209, BIO 6210, BIO 6211 and CHM 6231 courses. Who? Course's coordinator. When? 2nd year. Where? Biology Department.

		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	K4	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 80% of the CLO grade	How? Calculating students' pass rate in the BIO 6291 course. Who? Course's coordinator. When? 2nd year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
Skills	S1	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 70% of the CLO grade	How? Calculating students' pass rate in the BIO 6101, BIO 6102, CHM 6138 and CHM 6151 courses. Who? Course's coordinator. When? 1st year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	S2	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 70% of the CLO grade	How? Calculating students' pass rate in the BIO 6105, BIO 6107, CHM 6139 and STA 6117 courses. Who? Course's coordinator. When? 1st year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually

	S3	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 70% of the CLO grade	How? Calculating students' pass rate in the BIO 6209, BIO 6210, BIO 6211 and CHM 6231 courses. Who? Course's coordinator. When? 2nd year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	S4	**Direct** Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 70% of the CLO grade	How? Calculating students' pass rate in the BIO 6291 course. Who? Course's coordinator. When? 2nd year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
Values, Autonomy, and Responsibility	V1	**Direct** Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 85% of the CLO grade	How? Calculating students' pass rate in the BIO 6299 course. Who? Research project supervisor. When? 4th year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	V2	**Direct** Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have a grade of at least 85% of the CLO grade	How? Calculating students' pass rate in the BIO 6299 course. Who? Research project supervisor. When? 4th year. Where? Biology Department.
		Indirect Questionnaires Surveys		Who? Development and Quality Unit

		Focus Groups Course Evaluations		When? Annually

6. Program Evaluation Matrix:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Faculty, program leaders, administrative staff	Surveys, interviews	End of academic year
Effectiveness of Teaching & Assessment	Students, alumni, faculty	Classroom observations, surveys, focus groups	End of each semester
Learning Resources	Students, faculty, program leaders	Surveys, resource audits	Beginning of each semester
Services (e.g., advising, tutoring)	Students, administrative staff, faculty	Surveys, interviews	End of academic year
Partnerships (e.g., industry collaborations)	Employers, program leaders, alumni	Surveys, interviews, reports	End of academic year
Curriculum Relevance	Students, faculty, employers	Surveys, focus groups, course evaluations	End of each semester
Student Outcomes	Graduates, employers, faculty	Surveys, interviews	End of academic year
Alumni Success	Alumni, employers	Surveys, interviews	Annually
Resource Allocation	Faculty, administrative staff	Financial audits, surveys	End of academic year
Program Review and Improvement	Independent reviewers, faculty, program leaders	Reports, focus groups, surveys	Every four years

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: 1 year

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
Teaching and Learning Standard					
1	KPI-PG-1	Students' Evaluation of Quality of learning experience in the program (Average of overall rating of final year students for the quality of learning experience in the program)	4.0 of 5.0	Annual student survey (5-point scale)	End of the academic year
2	KPI-PG-2	Students' evaluation of the quality of the courses (Average students' overall rating of the quality of courses in an annual survey)	Average rating for the two semesters of 4.0/5.0	Annual student survey (5-point scale)	End of each semester
3	KPI-PG-3	Students' evaluation of the quality of academic supervision (Average students' overall rating of the quality of scientific supervision in an annual survey)	4.0 of 5.0	Annual student survey (5-point scale)	End of the academic year
4	KPI-PG-4	Average time for students' graduation (Average time (in semesters) students spend to graduate from the program)	5 semesters	Program records and tracking	End of each semester
5	KPI-PG-5	Rate of students dropping out of the program (Percentage of students who did not complete the program to the total number of students in the same cohort)	5%	Program records and tracking	End of the academic year
6	KPI-PG-6	Employers' evaluation of the program graduates' competency (Average of the overall rating of employers for the competency of the program graduates in an annual survey)	Average rating of 4.0/5.0	Annual employer survey (5-point scale)	Annually, after graduation
Students Standard					
7	KPI-PG-7	Students' satisfaction with services provided (The average of students' satisfaction rate with the various services provided by the program (food, transportation, sports facilities, academic advising, etc.) measured on a five-point scale in an annual survey)	4.0 of 5.0	Annual student survey (5-point scale)	End of the academic year
Faculty members Standard					
8	KPI-PG-8	Ratio of students to faculty members (The ratio of the total number of students to the total number of full-time and full-time equivalent faculty members participating in the program)	15:1 students-to-staff ratio	Program records	Annually
Research and Projects Standard					
9	KPI-PG-9	Percentage of publications of faculty members (Percentage of faculty members participating in the program with at least one research publication during the year to total faculty members)	60% of faculty members	Program publication records	Annually
10	KPI-PG-10	Rate of published research per faculty member (The average number of refereed and/or published research per faculty member participating in the program during the year (Total number of refereed and/or published research to the total	2 publications per faculty member	Program publication records	Annually

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
Teaching and Learning Standard					
		number of faculty members during the year))			
11	KPI-PG-11	Citations rate in refereed journals per faculty member (The average number of citations in refereed journals from published research (total number of citations in refereed journals from published research for faculty members to the total published research))	Average of 10 citations per faculty member	Program citation records	Annually
12	KPI-PG-12	Percentage of students' publication (Percentage of students who: a. published their research in refereed journals b. presented papers at conferences to the total number of students in the program during the year)	60% of faculty members	Program publication records	Annually
13	KPI-PG-13	Number of patents, innovative products, and awards of excellence (Number of: a. Patents and innovative products b. National and international excellence awards obtained annually by the students and staff of the program)	5	Program patents, innovative products, and awards of excellence records	Annually

M: male; F: female; C: combined
ND: Not detected
* including KPIs required by NCAAA

I. Specification Approval Data:

Council / Committee	**Department of Biology Council**
Reference No.	**Meeting No. 6**
Date	**29/9/2024**