هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-151

Program Specification
(Bachelor)

Program:	**Bachelor in Biotechnology**
Program Code (as per Saudi university ranking):	**20500**
Qualification Level:	**Bachelor, 6th level (NQF)**
Department:	**Biotechnology Department**
College:	**College of Sciences**
Institution:	**Taif University**
Program Specification:	New☐ updated*☒
Last Review Date:	October, 2023

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information

1. Program's Main Location :

Male Students Main Campus, Hawiyah, Taif
Female Students Main Campus, Hawiyah, Taif

2. Branches Offering the Program (if any):

Not Applicable

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

Not Applicable

4. Professions/jobs for which students are qualified

Licensed Occupations by Ministry of Human resources: Graduates of the program can get jobs in the following three main categories.

- Lab Specialist: Group 1, rank 7
- Lab Technician
  To Investigate food and drugs chemically and their safety from microorganisms in the laboratories of:
  - Food and drug agency, research labs in biotechnology
  - Ministry of Municipal and Rural Affairs
  - Laboratories of Ministry of Commerce
- **Science Teacher in Public and Private Schools**

5. Relevant occupational/ Professional sectors:

1. Laboratories and research centers of Ministry of Agriculture
2. Laboratories of Ministry of Commerce
3. Laboratories of Food and Drug Administration
4. Laboratories of Universities and Research Centers
5. Laboratories of Ministry of Helalth
6. National and International Schools
7. King Abdulaziz City for Science and Technology

6. Major Tracks/Pathways (if any):

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

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

exit points/awarded degree	Credit hours
1. None	**None**

8. Total credit hours: (135)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

The use of modern teaching methods and biotechnological techniques to prepare competitive graduates in the biotechnology field and serve the community through the application of scientific research.

2. Program Goals:

1.Improve the quality of education and realize learning outcomes.
2.Sustain high quality standards of teaching and learning .
3.Promote cutting-edge research.
4.Encourage program constituents for community services.
5. Recruit and retain qualified faculty members and staff

3. Program Learning Outcomes*

Knowledge and Understanding	
K1	Recall the basics of biotechnology and related sciences.
K2	Discuss the linkage between biotechnology to society.
K3	State the principles and applications of Biotechnology.
K4	Describe the ethics, risks, regulations, and economic impact of biotechnology.
K5	Explain experiment design, data analysis, and data presentation.
Skills	
S1	Evaluate the different applications of biotechnology.
S2	Analyze risk and benefits of biotechnology.
S3	Interpret the molecular diagnosis data.
S4	Practice critical thinking and problem solving
Values, Autonomy, and Responsibility	
V1	Accept the academic and professional morals
V2	Participate in a teamwork among peers
V3	Adopt the values and morals of the recent communication technology
V4	Initiate independence, responsibility, and leadership

* 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	12	24	17.78
	Elective	1	2	1.48
College Requirements	Required	6	22	16.30
	Elective	--	--	--
Program Requirements	Required	26	74	54.82
	Elective	2	6	4.44
Capstone Course/Project		1	3	2.22
Field Training/ Internship		1	4	2.96
Residency year		--	---	--
Others		--	---	--
Total		49	135	100%

* 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	201104-4	General Biology	Required	---	4	College
	2031204-4	General Physics (1)	Required	---	4	College
	999801-2	English for Academic Purposes (1)	Required	---	2	Institution
	2004115-2	History of Saudi Arabia	Required	-----	2	Institution
	202112-3	Introduction to Mathematics	Required	---	3	College
Level 2	2021204-4	Calculus (1)	Required	202112-3	4	College
	2051204-3	Introduction to Biotechnology	Required	---	3	College
	204101-4	General Chemistry1	Required	-----	4	College
	999802-2	English for Academic Purposes (2)	Required	999801-2	2	Institution
	990311-2	University Study Skills	Required	---	2	Institution
	990211-2	Writing Arabic Skills	Required		2	Institution
Level 3	2052101-3	Animal Biology	Required	201104-4	3	Department
	2052102-3	Cell Biology	Required	2051204-3	3	Department
	2052104-3	Genetics	Required	2051204-3	3	Department
	2052105-3	Plant Biology	Required	201104-4	3	Department
	2004112-2	Islamic Culture (Morals and Values)	Required	990111-2	2	Institution
	999803-2	English for Academic Purposes (3)	Required	999802-2	2	Institution
Level 4	2004111-2	Fundamentals of Islamic Culture	Required	---	2	Institution
	2052103-2	Ecology and Biodiversity	Required	201104-4	2	Department
	2052201-3	Biostatistics	Required	202112-3	3	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	2052202-3	Microbiology	Required	2052104-3	3	Department
	2052203-3	Molecular Biology	Required	2052102-3	3	Department
	2052204-3	Molecular Genetics	Required	2052104-3	3	Department
	999804-2	English for Academic Purposes (4)	Required	999803-2	2	Institution
Level 5	2053101-3	Biochemistry	Required	2052203-3	3	Department
	2053102-3	Genomics and Proteomics	Required	2052203-3	3	Department
	2053103-3	Introduction to Genetic Engineering	Required	2052204-3	3	Department
	2053104-3	Immunology	Required	2052101-3	3	Department
	2053105-3	Molecular Human Genetics	Required	2052204-3	3	Department
	999819-2	English for Science	Required		2	Institution
Level 6	2004313-2	Islamic Studies (Society in Islam)	Required	2004112-2	2	Institution
	2053202-3	Molecular Diagnostics	Required	2053102-3	3	Department
	2053203-3	Molecular Nutrition	Required	2053101-3	3	Department
	2053204-4	Professional Skills and Field Training	Required	2053103-3	4	Department
	2053205-3	Molecular Developmental Biology	Required	2052104-3	3	Department
	2053206-2	Selected Topics of Biotechnology I	Required	----	2	Department
Level 7	2054101-3	Animal Biotechnology	Required	2053103-3	3	Department
	2054102-3	Bioinformatics	Required	2053102-3	3	Department
	2054104-3	Microbial Biotechnology	Required	2053104-3	3	Department
	2054103-2	Ethics and Regulations of Biotechnology	Required	2053103-3	2	Department
	2004414-2	Islamic Studies (Mind and Debate)	Required	2004313-2	2	Institution
	2054105-3	Biotechnology and biological Evidence	Elective	2053202-3	3	Department
	2054106-3	Molecular Pharming and Biotechnology	Elective	2053103-3	3	Department
	2054107-3	Protein Chemistry Engineering	Elective	2053101-3	3	Department
	2054108-3	Biotechnology of Reproduction	Elective	2053205-3	3	Department
	2054109-3	Enzymes and Metabolism	Elective	2053101-3	3	Department
	99xxxx-2	Elective	Elective.U	-----	2	Institution
Level 8	2054201-2	Biotechnology Entrepreneurship	Required	2053204-4	2	Department
	2054202-3	Environmental Biotechnology	Required	2054104-3	3	Department
	2054203-3	Medical Biotechnology	Required	2053202-3	3	Department
	2054204-3	Graduation Project	Required	-----	3	Department
	2054205-3	Agriculture Biotechnology	Required	2053102-3	3	Department
	2054206-3	Bioengineering and Nanobiotechnology	Elective	2054104-3	3	Department
	2054207-3	Clinical Biochemistry	Elective	2053202-3	3	Department
	2054208-3	Selected Topics of Biotechnology II	Elective	2054102-3	3	Department
	2054209-3	Virology	Elective	2053202-3	3	Department

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

3. Course Specifications:

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

https://drive.google.com/drive/folders/1fZeNb1cTfeVBDQJ0NTQWLcIYfhJWVYAT?usp=drive_link

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with program courses, according to the following desired levels of performance *(I = Introduced & P = Practiced & M = Mastered).*

Course code & No.	Program Learning Outcomes												
	Knowledge and understanding				Skills					Values, Autonomy, a Responsibility			
	K1	K2	K3	K4	K5	S1	S2	S3	S4	V1	V2	V3	V4
History of Saudi Arabia, 2004115-2									P	P			
General Biology, 201104-4	I	I									I		
Introduction to Mathematics, 202112-3	I				I				I				
General Physics (1), 2031204-4	I				I					I			
English for Academic Purposes (1), 999801-2												I	
Calculus (1), 2021204-4	I				I				I				
General Chemistry (1), 204101-4	I												
Introduction to Biotechnology, 2051204-3	I	I	I				I						
Writing Arabic Skills, 990211-2												I	
University Study Skills, 990311-2	I									I			
English for Academic Purposes (2), 999802-2										I		I	
Islamic Culture (Morals and Values), 2004112-2										P		P	
Animal Biology, 2052101-3	I		**I**			**I**							
Cell Biology, 2052102-3	I	I						I					
Genetics, 2052104-3	**I**	**I**					**I**					**I**	
Plant Biology, 2052105-3	P		P					I					
English for Academic Purposes (3), 999803-2												I	I
Fundamentals of Islamic Culture, 2004111-2										I			I
Ecology and Biodiversity, 2052103-3	I			I						P			
Biostatistics, 2052201-3					I			P	I				
Microbiology, 2052202-3	**P**	**P**					**I**						
Molecular Biology, 2052203-3	P							I			P		
Molecular Genetics, 2052204-3			P	I				I			P		
English for Academic Purposes (4), 999804-2										P		P	P
Biochemistry, 2053101-3		P							P	P			
Genomics and Proteomics, 2053102-3			P		P			P					P
Introduction to Genetic Engineering, 2053103-3		**P**		**P**		**P**				P			
Immunology, 2053104-3				P				P			P		

Course code & No.	Program Learning Outcomes												
	Knowledge and understanding				Skills					Values, Autonomy, a Responsibility			
	K1	K2	K3	K4	K5	S1	S2	S3	S4	V1	V2	V3	V4
Molecular Human Genetics, 2053105-3			p	P					P				P
English for Science, 999807-2					P							P	P
Islamic Studies (Society in Islam), 2004313-2									P			P	
Molecular Diagnostics, 2053202-2	M				P			P		p			
Molecular Nutrition, 2053203-3		**P**		**P**			**M**			**M**			
Professional Skills and Field Training, 2053204-4		P			M			P			M		
Molecular Developmental Biology, 2053205-3	M		M			M			M				P
Selected Topics of Biotechnology I, 2053206-2	**M**			**M**							**M**		
French, 990314-2									M			M	
Chinese, 990315-2									M			M	
Presentation Skills, 999809-2									M			M	
Preparation for IELTS, 999814-2									M			M	
Academic Writing, 999815-2									M			M	
English and the 21st Century skills, 999821-2									M			M	
Islamic Studies (Mind and Debate)4, 2004414-2										M		M	
Animal Biotechnology, 2054101-3		M	M					M					M
Bioinformatics, 2054102-3		M		M			M					M	
Ethics and Regulations of Biotechnology, 2054103-2		**M**		**M**								**M**	**M**
Microbial Biotechnology, 2054104-3	M				M		M		M		M		
Biotechnology and Biological Evidence**, 2054105-3**	M			M			M					M	
Molecular Pharming and Biotechnology, 2054106-3	M			M			M					M	
Protein Chemistry Engineering, 2054107-3	M			M			M					M	
Biotechnology of Reproduction, 2054108-3	M			M			M					M	
Enzymes and Metabolism, 2054109-3	M			M			M					M	
Biotechnology Entrepreneurship, 2054201-2		M		M						M			
Environmental Biotechnology, 2054202-3			M		M	M		M					
Medical Biotechnology, 2054203-2			**M**		**M**	**M**				**M**			
Graduation Project, 2054204-3		M			M			M	M				M
Agriculture Biotechnology, 2054205-3				M		M					M		M

Course code & No.	Program Learning Outcomes												
	Knowledge and understanding				Skills					Values, Autonomy, a Responsibility			
	K1	K2	K3	K4	K5	S1	S2	S3	S4	V1	V2	V3	V4
Bioengineering and Nanobiotechnology, **2054206-3**	M				M		M			M	M		
Clinical Biochemistry, 2054207-3	M				M		M			M	M		
Selected Topics of Biotechnology II, 2054208-3	M				M		M			M	M		
Virology, 2054209-3	M				M		M			M	M		

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

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

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

The Biotechnology program integrates various teaching strategies to realize the program learning outcomes including the following list of teaching strategies.

1. **Lecture (LE)**
2. **Group discussion (GD)**
3. **Projects (PR)**
4. **Problem solving (PS)**
5. **Brainstorming (BS)**
6. **Self-learning (SL)**
7. **E-learning (EL)**

The main features of teaching and learning policy of the Biotechnology program are:

1. All teaching materials are unified between male and female students.
2. Unification of exams and exam timing as possible
3. All exams are prepared from the same question banks and use the same question types
4. Activities, reports, and assignments are unified in both sections.
5. E-learning was very effective during the Covid-19 pandemic and still can be effective in the future.

The guide for teaching and learning strategies as well as assessment methods can be found at the following link: https://drive.google.com/drive/folders/1rlL-S3wr3JmCCXfb_6JHbcwZ5qqRdN2H?usp=sharing

Learning outcomes	Learning strategies						
	Lecture	Group Discussion	Projects	Problems solving	Brain storming	Self-learning	E-learning
Knowledge	X	X	X	X	X	X	X
Skills	X		X	X			X
Values	X	X	X		X	X	X

6. Assessment Methods for program learning outcomes.

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

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

The 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).

Various assessment methods are implemented to measure the achievement of PLOs. These include the following assessment methods.

Direct assessment methods (80%)

1. Written exam (WEx)
2. Presentations (PRE)
3. Oral exams (OE)
4. Performance Evaluation (PE)
5. Report (R)
6. Lab Report (LR)
7. Electronic Exam (EEx)
8. Assignments (As)
9. Poster (P)

Indirect assessment methods:

1. **Evaluation of Consultant Committee (10%)**
2. **Evaluation of Beneficiaries (10%).**

Consistency between Assessment Methods and Program Learning Domains

Learning outcomes	Assessment strategies								
	Written Exams	Presentations	Oral Exams	Report	Lab Report	Performance Evaluation	Electronic Exam	Assignment Report	Poster
Knowledge	X	X	X	X			X	X	X
Skills	X	X		X	X	X		X	
Values	X	X	X	X		X	X	X	X

D. Student Admission and Support:

1. Student Admission Requirements

The admission to the program is governed and regulated by the University policies which include. Partial list of admission regulations are:

1. **Accepted students should be Saudi nationals. International students are also accepted through different admission regulations.**
2. **Applicants have to hold the secondary school diploma or its equivalents from schools inside or outside the Saudi Arabia.**
3. **Applicant should not have been admitted to Taif University before.**
4. **Secondary school Diploma shall not be older than 5 years.**
5. **The weighted ratio of the applicant grades is: General Aptitude Test 30%, Secondary School Performance 40%, and the Achievement Test 30%.**

For more details about the student admission regulations and requirements, please refer to the following link which contains the following:

1. **Guide and regulation of registration at Taif University**
2. **Academic Registration Online System-User Manual**
3. **Bulletin of the Deanship of Supporting Studies**
4. **Manual for Guidance and Orientation**
5. **Rules and Regulations for Student Admission**
6. **The simplified academic guide**

https://drive.google.com/drive/folders/1Od_vsh5XW0QA-TX5V4l2e-vZHgLlnrll?usp=sharing

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).

1. **Orientation for new students is offered at the University level.**
2. **The Academic Guidance Unit (college of science) and its related committee of Department of Biotechnology also provide support and counseling for the student of the program. This includes the orientation of the academic advisor to his/her students which include the drop/add regulations, the maximum and the minimum credit load for a student in a semester.**

The following link contains Manual for Guidance and Orientation

https://drive.google.com/drive/folders/1-RuV8P763z-G8fjJhVqTnfUlXlSBISFN?usp=sharing

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).

1. **At the program level, the** Program's Academic Guidance Unit (AGU) take the full responsibility of admission, dropping, holding students' academic progress. The Unit has its semester and annual plans.
2. **Each student has an academic advisor who help him throughout the whole process of registration, academic load based on his cumulative GPA, and other phycological as well as academic counseling. The work of all academic advisors is coordinated by the AGU of the program.**
3. **The AGU and the academic advisors follow the bylaws of the academic guidance of the university**

The following link contains guidebooks, bulletins and regulations related to student counseling services including:

a. Guidebook for Academic Counseling
b. Annual Plan and semester plan of Academic Guidance Unit
c. Bulletin of the Deanship of Supporting Studies
d. Rules and Regulations for Student Admission

https://drive.google.com/drive/folders/1uQ3cRSt6HUWxi6TYuDHrLqfCqi3r2lzT?usp=sharing

4. Special Support

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

1. At the program level, office hours (6 weekly) for each faculty members to provide help for all students, especially for those with special needs. This effort is coordinated with the college of science unit for students with special needs as well as the deanship of student affairs.
2. The program coordinates the needs of disabled students or students with temporarily health circumstances get help and support through the college unit or the deanship of student affairs.
3. The student clubs in the Program help the talented students to express their hobbies and talents and support the talented students.

The following link contains the Bulletin of Services offered to Special Need Students and the Guide of deanship of student affairs.
https://drive.google.com/drive/folders/1Wka-czk6hqXIVi-dF0Z7Q9SGmMc4abiD?usp=sharing

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	Biotechnology	Genetics and Biotechnology	----	2	1	3
	Biotechnology	Microbial Biotechnology	----	2	1	3
	Biotechnology	Molecular Biotechnology	----	2	1	3
Associate Professor	Biotechnology	Genetics and Biotechnology	----	1	1	2
	Biotechnology	Environmental Biotechnology	----	1	1	2
	Biotechnology	Molecular Biotechnology	----	1	1	2
Assistant Professor	Biotechnology	Genetics and Biotechnology	----	2	2	4
	Biotechnology	Microbial Biotechnology	----	2	2	4
	Biotechnology	Molecular Biotechnology	----	2	2	4
Lecturer	Biotechnology	Genetics and Biotechnology	----	1	1	2
	Biotechnology	Environmental Biotechnology	----	1	1	2
	Biotechnology	Molecular Biotechnology	----	1	1	2
Teaching Assistant	Biotechnology	Genetics and Biotechnology	----	1	1	2
	Biotechnology	Microbial Biotechnology	----	1	1	2

	Biotechnology	Molecular Biotechnology	----	1	1	2
Technicians and Laboratory Assistant	---	---	---	1 per lab	1 per lab	1 per lab
Administrative and Supportive Staff	---	---	---	2	2	4
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.)

1. Hard copy learning resources (Textbooks, references) are ordered through the main library on an annual basis. Textbooks and references are discussed and decided by the department council and faculty members responsible for the teaching of specific courses.
2. Textbooks are obtained through the main library. If it is not available, a book in a local library may be assigned for teaching the course.
3. Sometimes, free PDF online books may be used as references for some courses.
4. All textbooks and references should be approved by the Department council for teaching.
5. Blackboard system is used to teach and examine students in all courses that use E-learning in the Faculty of Science.
6. Other learning materials (slides, molecular models, software, chemicals, glassware,…) are ordered through the Department, College, and University
7. Laboratory management is regulated according to the Guidebook of Laboratory Management at Taif university (located at the link below)

More about the regulations and guidance related to learning resources can be located at the following link.
https://drive.google.com/drive/folders/1INi8w621gp2LdXRpp1KnHTI3__tqsU51?usp=sharing

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

1. Library: Books at the main or Department library are available for faculty members either in the library or to borrow after filling in the required forms. In addition, the Department of Biotechnology has a small library of more specific books. See the Guidebook for Finding Books and References in the Central Library at the following link.
https://drive.google.com/drive/folders/1kRQBLvfwrIMnBu_JpDZmfD2VGYO3Cixi?usp=sharing
2. Laboratories: Practical classes are distributed on the Department labs (6) by a committee of Department Head, Department coordinator for registration, and technicians. See the Guidebook of Laboratory Management at the following link
https://drive.google.com/drive/folders/1kRQBLvfwrIMnBu_JpDZmfD2VGYO3Cixi?usp=sharing
3. Classrooms: The Deanship of registration with the Department coordinator for registration is responsible for assigning classrooms for all classes of all provided courses each semester.

4. Projectors are provided by the University. All classrooms are equipped with projectors to aid in teaching.
5. Biotechnology laboratories are equipped with suitable equipments including microscopes, water distillers, balances, incubators, refrigerators, -20 refrigerators, pippet sets, microcentrifuges, laminar flow, gel electrophoresis units, power supplies, PCR machine, magnetic stirrers, for teaching the lab sections.

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

1. Lab safety is maintained and monitored by the Security and Safety Unit of the University that enforce its regulation for security and safety in Taif University campuses (Male and Female).
2. It also monitors the lab and chemical safety in colleges and departments that have these types of facilities.
3. At the university level, equipped emergency vehicles are provided and ready for any emergency cases. The University medical center, faculty of medicine, faculty of dentistry provide services for faculty members, employees, and students around the weekdays.
4. Emergency kits and fire distinguishers are provided in all laboratorys of the programs.
5. Safety directions are posted on noticeable areas for students and staff.

See the handbook for administration of Security at the following link.
https://drive.google.com/drive/folders/1_81VGodjw4VH_zgGhvCK-1FRSTYaNVdm?usp=sharing

See the Guidebook of Laboratory Management at the following link
https://drive.google.com/drive/folders/1kRQBLvfwrIMnBu_JpDZmfD2VGYO3Cixi?usp=sharing

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

Program quality assurance system follow Taif University Quality Assurance manual which can be located at the following link
https://drive.google.com/drive/folders/1eCzlceVzIl5Sumt5xpjdPM7_5lyH1FUa?usp=sharing

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

1. Institution courses are provided by the respective program and monitored by the deanship of Supporting Studies.
2. The common courses of college of science are provided by the respective program and monitored by the respective program as well as the Academic Unit of college of science.
3. Corse reports of courses taught by other programs are submitted each semester from the respective programs.
4. The unit of academic development in the College of Sciences coordinates and monitor the college courses tough by different department.
5. The Deanship of Supportive Studies in coordinate and monitor the quality procedures of University courses.

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

Unification of the scientific material that is taught for each course in the main campus as well as branches.
2. Using the same references for students in the main campuses and branches.
3. Unification of midterm exams if possible, in the main campuses and branches. If exams are excuted in different timing so that exam unification is impossible, questions are drawn from the same question banks.
4. Unification of the system of midterm, periodic, and final exam questions in all groups and all the branches
5. Final examinations questions are mostly unified in the main campus and branches.
6. The same course specification is used at the beginning of the semester and one course report is prepared at the end of each semester.
The Guide for Study and Exams for both sections (males, female) can be located at the following link.
https://drive.google.com/drive/folders/1rlL-S3wr3JmCCXfb_6JHbcwZ5qqRdN2H?usp=sharing

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

Biotechnology programs estimates the PLOs using the course learning outcome (CLOs) as a direct approach which weighs 80% of the total estimation. Selected courses (10 courses) of different levels, especially the senior levels, are used to estimate the PLOs. Besides, PLOs are estimated using two indirect methods including the evaluation of the advisory committee of the PLOs (10%) and the evaluation of the beneficiaries of PLOs (10%).
The following link has the Assessment Plan for PLOs
https://drive.google.com/file/d/1N0dxMSTR9BsUyOaEb_OGKilss9ajEtZN/view?usp=sharing

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Program Leadership	Faculty Members	Surveys	End of academic year
Effectiveness of Teaching and Assessment	Students and Independent Reviewer	Surveys and Interviews	End of academic year
Student's services	Faculty and Students	Surveys	End of academic year
Learning Resources	Students	Surveys	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 (4) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	Students' Evaluation of Quality of learning experience in the Program	3.25 on a 3.26scale of 1-5	Surveys	End of Academic Year
2	KPI-P-02	Students' evaluation of the quality of the courses	3.7 on a scale of 1-5	Surveys	End of Academic Year
3	KPI-P-03	Completion rate	65%	Statistics	End of Academic Year
4	KPI-P-04	First-year students retention rate	85%	Statistics	End of Academic Year
5	KPI-P-05	Students' performance in the professional and/or national examinations	Not Applicable	Statistics	End of Academic Year
6	KPI-P-06	Graduates' employability and enrolment in postgraduate programs	10%	Statistics	Six months after graduation
7	KPI-P-07	Employers' evaluation of the program graduates proficiency	3.5 on a scale of 1-5	Surveys	End of Academic Year
8	KPI-P-08	Ratio of students to teaching staff	30:1	Statistics	End of Academic Year
9	KPI-P-09	Percentage of publications of faculty members	80%	Statistics	End of Academic Year
10	KPI-P-10	Rate of published research per faculty member	3	Statistics	End of Academic Year
11	KPI-P-11	Citations rate in refereed journals per faculty member	80	Statistics	End of Academic Year

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	**DEPARTMENT COUNCIL**
Reference No.	**6**
Date	**5/11/2023**

Committee of Academic Development and Accreditation