Program Specification
— (Bachelor)

Program:	**Bachelor of Science [B.Sc] in Environment Protection Technology**
Program Code (as per Saudi university ranking):	**EPT**
Qualification Level:	6TH [Consistency With National Qualifications Framework]
Department:	Biology
College:	College of Science
Institution:	Majmaah University
Program Specification:	New ☒ updated* ☐
Last Review Date:	Not applicable

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information

1. Program's Main Location :

Al Zulfi, Majmaah University

2. Branches Offering the Program (if any):

Nil [Only in Al Zulfi]

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

Nil

4. Professions/jobs for which students are qualified

- Environmental Technician
- Water Quality Analyst
- Air Pollution and Noise Technician
- Biodiversity Technician
- Nature Reserves Technician
- Public Health Technician
- Environmental Epidemiology
- Technician Air and Water Pollution
- Technician Hazardous Waste Treatment
- Technician Drinking Water Quality
- Technician Environmental Assessment
- Technician Quarantine
- Environmental Protection Specialist
- Head of Environmental Monitoring Substation
- Researcher and Fisheries Specialist
- Researcher and Livestock Specialist

5. Relevant occupational/ Professional sectors:

1. Ministry of Agriculture in many areas such as soil laboratories, water, plant and animal wealth.
2. The National Commission for Wildlife Conservation.
3. Municipalities.

4. Water and Sanitation.
5. Meteorology and Environmental Protection.
6. Specifications and standards in areas such as the quality laboratories.
7. Planning and Environmental Health at the Ministry of Municipal and Rural Affairs.
8. Food packaging factories.
9. Agricultural crops silos.
10. Food and Drug Authority.
11. Public education.
12. Universities staff.

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1.		
2.	Not applicable	
3.		
…		

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

exit points/awarded degree	Credit hours
1. Associate Diploma in Environmental Protection Technology	33
2. Intermediate Diploma in Environmental Protection Technology	69
3. Bachelor of Science in Environmental Protection Technology	132

8. Total credit hours: (132 hours)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Give an excellent educational service for undergraduate students in Environmental Protection Technology and sustainable development making them capable to be competent in accordance with the standards of the labor market, provide a stimulating academic environment for scientific research, and provide knowledge services to the community.

2. Program Goals:

1. The students will know basic environmental principles and concepts.
2. The students will apply the interdisciplinary principles of environmental science.
3. The students will Analyze and evaluate the most important environmental issues facing in Saudi Arabia and will be proficient problem solvers.
4. Students will be use appropriate technology tools.
5. Students will be excellence in learning, scientific research and the community service in the environmental field.
6. Students will synthesize and communicate scientific research

3. Program Learning Outcomes*

Knowledge and Understanding

K1	Extensive deep knowledge, understanding of facts, concepts, principles, theories, processes, and procedures provided for environmental protection technology.
K2	Outline the different biological processes of the living organisms showing the adaptation to the environment
K3	Gain basic knowledge on identification, routine procedures and technical requirements of different environmental tools and equipment

Skills

S1	Identify and solve problems in simple, familiar and highly structured contexts, in environmental protection technology
S2	Apply environmental concepts using integration of academic knowledge and professional skills in environmental sciences
S3	Apply critical and creative thinking in different complex and familiar contexts in environmental protection technology
S4	Use common basic tools and materials to deal with simple and familiar practical activities, safely

Values, Autonomy, and Responsibility

V1	Demonstrate strong awareness of values and ethics associated with professional practices in environmental protection technology
V2	Collaborate with diverse work teams, to accomplish group or individual activities to achieve common goals
V3	Communicate effectively using the proper presentation forms, scientific language and reasoning appropriate for different issues and audiences

* 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	0	0	0 %
	Elective	6	12	9.1 %
College Requirements	Required	5	15	11.4 %
	Elective	0	0	0 %
Program Requirements	Required	40	93	70.5 %
	Elective	2	4	3.00 %
Capstone Course/Project		1	3	2.3 %
Field Training/ Internship		1	5	3.8 %
Residency year	N/A			
Others	N/A			
Total		55	132	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 requirement
1st Year Semester 1						
Level 1	ENGD-111	English Grammar	Required	-	3	College
	ENGD-112	English Reading Skill	Required	-	3	College
	ENGD-113	English Writing Skill	Required	-	3	College
	ENGD-114	English Listening and Speaking Skill	Required	-	3	College
	ENGD-115	English Vocabulary Building	Required	-	3	College
	ENGD-111	English Grammar	Required	-	3	College
	ENGD-112	English Reading Skill	Required	-	3	College
1st Year Semester 2						
Level 2	ENV-101	General ecology	Required	-	3	Department
	ENV-102	General zoology	Required	-	3	Department
	ENV-103	General botany	Required	-	3	Department
	ENV-104	General Chemistry	Required	-	3	Department
	ENV-161	General Microbiology	Required	ENV-103	3	Department
	ENV-131	Environmental Toxicology	Required	-	3	Department
	ENV-181	Field training-1	Required	-	0	Department
2nd Year Semester 1						
Level 3	ENV -221	Hazardous waste management	Required	-	2	Department
	ENV-232	Air and water pollution	Required	-	2	Department
	ENV-211	Ecosystems and Biodiversity	Required	ENV-101	2	Department

	ENV-262	Environmental Microbiology	Required	ENV-161	3	Department
	ENV-212	Protecting the environment and natural resources	Required	ENV-101	2	Department
	ENV-222	Drinking water management and quality	Required	ENV-104	3	Department
	ENV-223	Management and environmental impact assessment	Required	ENV-101	2	Department
	ENV-271	Instrumentation & Microscopic Preparations	Required	ENV-161	2	Department
2nd Year Semester 2						
Level 4	ENV-213	The Arabian Gulf Ecosystem	Required	ENV-211	2	Department
	ENV-241	Invertebrate Ecology	Required	ENV-102	3	Department
	ENV-233	Animal environment and pollution	Required	ENV-132	2	Department
	ENV-242	Ecological Entomology	Required	ENV-102	3	Department
	ENV-224	Integrated management of protected areas	Required	ENV-223	2	Department
	ENV-263	Biodegradation	Required	ENV-262	3	Department
	ENV-251	Plant Anatomy & Morphology	Required	ENV-103	3	Department
	ENV-282	Field training-2	Required		0	Department
3rd Year Semester 1						
Level 5	ENV-325	sustainable development of natural resources	Required	ENV-224	2	Department
	ENV-343	Animal Physiology	Required	ENV-241	3	Department
	ENV-326	Natural resources in desert areas	Required	ENV-212	2	Department
	ENV -352	Plant Physiology	Required	ENV -251	3	Department
	ENV-344	Animal Behavior	Required	ENV-343	2	Department
	-	University elective	Elective	-	2	Institution
	-	Elective courses (Department)	Elective	-	2	Department
3rd Year Semester 2						
Level 6	ENV-345	vertebrate ecology	Required	ENV-241	3	Department
	ENV-372	Biochemistry	Required	ENV-104	3	Department
	ENV-346	Marine Environmental Sciences	Required	ENV-241 ENV-345	3	Department
	ENV-327	Environmental Laws and Ethics	Required	-	2	Department
		University elective	Elective		2	Institution
		University elective	Elective		2	Institution
4th Year Semester 1						
Level 7	ENV-464	Genetics	Required	ENV-343	2	Department
	ENV-453	Plant Adaptation	Required	ENV-352	2	Department
	ENV-465	Microbial diversity	Required	ENV-263	3	Department
	ENV-473	Introduction of geographical Information System & remote sensing	Required	ENV-223	2	Department
	ENV-414	Environmental Physiology	Required	ENV-343 ENV-352	2	Department

	ENV-483	Environmental modeling	Required	-	3	Department
		University elective	Elective		2	Institution
		4ᵗʰ Year Semester 2				
Level 8	ENV-466	Applied environmental biotechnology	Required	ENV-464	2	Department
	ENV-484	Field training	Required	ENV-483	5	Department
	ENV-485	Graduation Project	Required	ENV-483	3	Department
		University elective	Elective		2	Institution
		University elective	Elective		2	Institution
		Elective courses (Department)	Elective		2	Department
		Elective Courses (3rd Year)				
	ENV-391	Weather and Climatology	Elective		2	
	ENV-392	Environmental Economy	Elective		2	
	ENV-393	Management of occupational safety	Elective		2	
	ENV-394	Flora and fauna of Saudi Arabia	Elective		2	
		Elective Courses (4th Year)				
	ENV-495	Conservation Biology	Elective		2	
	ENV-496	Environmental Restoration	Elective		2	
	ENV-497	Food Safety & Quality Control	Elective		2	
	ENV-498	Atmosphere chemistry	Elective		2	

* 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)

> All courses in 'Environment Protection Technology' program prepared as per NCAAA guidelines 2023 and uploaded in the following weblink.
> EPT_Course Specifications 1445-46

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
ENGD-111			I			I				I
ENGD-112			I			I				I
ENGD-113			I			I				I
ENGD-114			I			I				I
ENGD-115			I			I				I

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding			Skills				Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
ENV-101	I			I				I		
ENV-102		I					I			I
ENV-103		I					I			I
ENV-104	I				I			I		
ENV-161	I			I				I		
ENV -221	I				I			I		
ENV-131		I					I			I
ENV-232	I					I			I	
ENV-181	I			I				I		
ENV-211		I					I			I
ENV-262			I				I		I	
ENV-212	I				I			I		
ENV-222		I					I			I
ENV-223	I			I					I	
ENV-213		I					I			I
ENV-271	I					I		I		
ENV-241		I			I		I		I	
ENV-233	I				I				I	
ENV-242		P			P		P		P	
ENV-224	P			P				P		
ENV-263	P				P			P		
ENV-251		P					P			P
ENV-282			P			P			P	
ENV-325	P		P				P	P		
ENV-343		P			P		P		P	
ENV-326			P				P		P	
ENV-392		P					P			P
ENV-393		P					P			P
ENV-394		P					P			P
ENV-344		P			P				P	
ENV-352		P			P					P
ENV-345		P					P			P
ENV-372		P					P			P
ENV-346	P				P				P	

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding			Skills				Values, Autonomy, and Responsibility		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
ENV-327			P			P				P
ENV-464	M						M	M		
ENV-453	M						M	M		
ENV-465		M			M					M
ENV-473		M			M					M
ENV-466	M			M						M
ENV-414	M			M						M
ENV-483			M		M				M	
ENV-495		M					M			M
ENV-496		M					M			M
ENV-497		M					M			M
ENV-498		M					M			M
ENV-484			M				M		M	
ENV-485		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 following teaching Strategies applied to achieve program learning outcomes
- Lectures that are considered as direct teaching between the lecturer and students, whether through class rooms or by using e-learning (blackboard). This strategy occupied the most of the time.
- Class discussion / Close reading and text analysis.
- Collaborative learning / pair work / group work (Cooperative learning is a strategy to encourage students to work together by dividing them to small groups for solving and discussion about the topics and class activities).
- Promote problem-solving is a strategy involve that students are asked to solve problems related to the given topic individually and within a team.
- Writing to learn is an important strategy where students are encouraged to write the lectures to remember more, also they are given assignments to enhance their abilities and thinking skills.
- Seminars
- Projects
- Discussions with students motivating them to make maximum use of the course book.
- Encourage students to make extensive use of material on the web.
- Encourage the student to look for some complicated problems in the different references.

- Training students to build good relationships with their counterparts and collaborate with others.

The teaching methods and activities compared with our PLOs which listed below in the table

Educational activities supporting the achievement of learning Outcomes.								
Teaching Strategies	**PLOs**							
	K1	**K2**	**K3**	**S1**	**S2**	**S3**	**S4**	**V1**	**V2**
Lecture	√	√	√						
Discussion				√	√	√			
Brain Strom				√	√	√			
Teamwork								√	
Online (Blackboard)	√	√	√	√	√	√			
Solve problems					√				
Case study				√	√				
Projects	√	√	√	√	√	√		√	√
Labs /Reports							√		
Training courses or workshop						√	√	√	√
Volunteer work								√	√

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).

Direct Assessment done by following methods
- Examination (Midterm and Final)
- Presentation and quizzes
- Assignments and group discussions
- Demonstration of experimental design and models
- Laboratory exercises
- Oral questions
- Quizzes

The direct assessment method can be used to measure the achievement of PLOs in all areas, which are tabulated below

Direct Assessment Methods of Program Learning Outcomes									
Assessment Methods	**PLOs**								
	K1	**K2**	**K3**	**S1**	**S2**	**S3**	**S4**	**V1**	**V2**
Final Exam	√	√	√	√	√	√			
Mid-Terms	√	√	√	√	√	√			
Quizzes	√	√	√	√	√	√			
E-Exam	√	√	√	√	√	√			
Assignments	√	√	√	√	√	√		√	
Power Points				√	√	√			√
Practical Exam							√		
Lab Reports							√		
Research/Projects							√	√	√
Scientific Essays								√	√
Field training / Report								√	√

Indirect Assessment Methods:

Assesses the stakeholders (employers, students, employees, alumni etc.,) rating towards the program quality and graduate's performance – are called 'Indirect assessment'. The indirect assessment methods are listed below

Indirect Assessment Methods of Program Learning Outcomes									
Indirect Assessment Methods	**PLOs**								
	K1	**K2**	**K3**	**S1**	**S2**	**S3**	**S4**	**V1**	**V2**
Course evaluation survey	√	√	√	√	√	√	√	√	√
Program evaluation survey	√	√		√	√	√	√	√	
Alumni survey (Graduated students)	√	√	√	√		√	√		
Employers Survey	√	√	√	√	√	√		√	√

D. Student Admission and Support:

1. Student Admission Requirements

The initial enrolment of students for the biology program is done at the beginning of each semester in the academic year. The enrolment in the program is completely online, the students apply
through the deanship of student's admission and registration website. Based on their eligibility and availability of seats, the students are then assigned to different colleges and departments.

General Requirements for Admission: Majmaah University (MU) has central policies and procedures for admitting and following up the progress of all students throughout the university. [For more details - http://mu.edu.sa/en/deanships/deanship-admission-and-registration]

The following are admission requirements stipulated for the admission of the new student:
- An applicant for admission must have a Saudi Secondary School Certificate - Science Section (SSSCSS) or its equivalent.
- The secondary school certificate should not be more than five years old and the Rector of the University may give exemption from this condition.
- The minimum qualifying scores in SSSCSS – 60%

- Must not have been dismissed from another university for disciplinary reasons.
- When applicants exceed availability, priority is given to the students with higher grades.

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).

First week of every semester, we conduct orientation program for new students, which includes

- At the beginning of the year, there are academic guidance activities help the new stud to know the equipment and facilities of the college.
- General introduction of faculty members
- Class room visits
- Laboratory visits
- Library visits
- Student's rights
- Explanation of teaching methodologies

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).

- Meeting of the head of department with new students.
- Give counseling to the students.
- A weekly office schedule is displayed on each faculty member's office and a total of 10 hours are specified for the students to provide them extra assistance and help in solving their academic problems.
- A follow-up committee exists in the department to look after the needs of the teaching assistant's scholarship holders and the meritorious students.

4. Special Support

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

Special support for disabled students

- The college's complex is provided all the requirements of disabled students (elevators, car parking, and special paths).

Special support for Talented / high grade students:

- The head of the Biology program and student's activities committee members select the best students those who got high GPA grades and give awards to them.

- Talented students encouraged and displaying the department handbook on the website of the department
- Deanship of student's affairs from the faculty will give awards/cash prize who achieved in national and international level competitions.

Special support for Low achievers:

- Cooperative learning or other forms of teamwork are an active method to meet t needs of low achievers and gifted students.
- Monitoring and helping the low achievers through discussed them, and identify the causes for the low performance. They are asked for extra support in office hours.
- Give an advice periodically with help of 'Academic advising' unit and improve their grades.
- Students rights committee members will support to low achievers and try to solve their issues

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	-	**1**	Environmental Sciences	1	-	1
Associate Professor	**-**	**-**	-	-	-	-
Assistant Professor	**-**	**-**	-	-	-	-
Lecturer	-	**-**	-	-	-	-
Teaching Assistant	-	**-**	-	-	-	-
Technicians and Laboratory Assistant	-	**5**	Ecology, Environmental Biology	3	2	5
Administrative and Supportive Staff	-	**1**	Botany, Zoology, Ecology	1	-	1
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.)

Learning Resources, Facilities, and Equipment is considered the backbone for supporting teaching and learning processes.

Learning Resources:

University Central Library:

In MU, there is a central library that contains Biological and Environmental sciences textbooks and references. Faculty members can find references for their course using the online MU digital library link to search and borrow the required book. Service is summarized in giving the opportunity for all male & female affiliates of the university to book sources of information in the possession of another beneficiary of the university libraries, as well as completing the borrowing process electronically through the beneficiary's library account.

To access the site Click here http://maktabat.mu.edu.sa/

Digital Saudi Library (DSL)

DSL is the gateway to the world of knowledge largest gathering of academic e-books in the Arab world, where currently has more than (114 000), full-text e-book in various scientific disciplines, and has more than 300 global publishers like Elsevier, Springer, Pearson, Wiley, Taylor & Francis, McGraw hill and contain at books for publishers such as world-class academics.

For more https://sdl.edu.sa/SDLPortal/en/Publishers.aspx

Databases Handbook http://mu.edu.sa/en/deanships/deanship-library-affairs/electronic-guide

College Library

 There is a college library that includes all textbooks required by faculty and teaching staff. The coordinator of scientific affairs unit gathers all required textbooks (latest updated editions) and send them to the program H.O.D to be requested. All faculty members are encouraged to check number of textbooks and references and number of students in his section. In some cases, university council approval is required. The adequacy of textbook should be checked by the instructor before the beginning of the semester and to provide the coordinator of scientific affairs unit with the required number of textbooks.

If textbook not available

- Texts and references will be chosen by specialized committees in the department and finally approved in the departmental meeting.
- These texts and references are made available in an appropriate time by the book shop and the central library.
- Through writing original text books or translation of some standard books by the faculty members.
- Subscribing in the data bases to serve the research purposes.
- Faculty members created a e-library which contains list of books and all updated in 'blackboard' portal to get easy access to students

> ♣ Faculty members prepared a short note books with question banks and laboratory manual for their courses
>
> ♣ Web based learning resources which related to the courses and biological research (Pub med ,Elsevier, Research gate etc) regularly updated by the 'Knowledge resource unit' and faculty members

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

We have full equipped following facilities

♣ **Classroom with e-podium (audio – video visuals)**

There are several classrooms shared with other College of Science programs. Environmental Protection Technology Program will house within the College of Science building and shares some common facilities with other departments. The College of Science already have classrooms which adequately equipped with educational electronic with high technology media with interactive smart boards. Each classroom has acceptable seating for maximum 20-30 students. The classrooms and the associated equipment are acceptable and provide a good environment to students and faculty in order to achieve the program educational objectives and student outcomes.

♣ **Laboratories**

Laboratories are well equipped for practical training of students according to the course requirements, but there is shortage in technicians and assistants for course tutoring. The department laboratories follow College of Science safety instructions that ensure the safety of students and equipment.

♣ **Library**

There is a college library that includes all textbooks required by faculty and teaching staff. Our program 'library and knowledge resources unit' regularly conduct the meeting to improve the facilities with more books.

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

> ♣ To maintain a healthy and safe environment within the Majmaah university (MU) facilities, MU established an administration belonging to the vice rector, this is general administration for University Safety and security. This administration is keen to promote the ways to prevent any accidents, hazards and security issues in buildings and other facilities and keep up with modern technologies. It is also working on the provision of periodic examination and preventive safety measures to maintain the university installations and facilities and their contents.
>
> **Laboratory and Information technology committee:**
>
> ♣ Our college maintain healthy and safe environment in the laboratories by following 'Occupational health and Safety management system' (OHSAA 18001:2007) guidelines. For ensuring the quality assurance within the biology program laboratories, the college established one unit belonging to the vice deanship of scientific research called the 'Laboratory safety and Information technology committee. Also, the departments
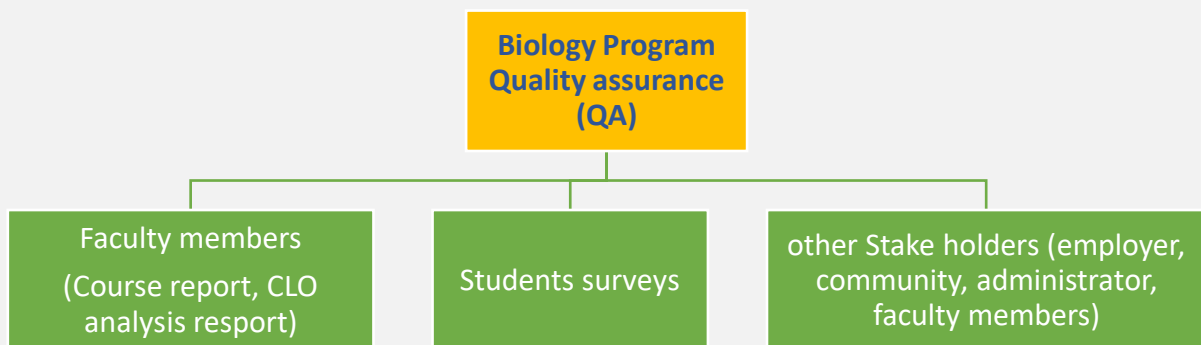
established labs. committees to cooperate with that unit. Each laboratory is equipped with the required safety facilities; emergency phone numbers, personal protective equipment, general safety signs and instructions, specific safety instructions and safety labels, fire alarms, fire extinguishing equipment (blankets, sand buckets, fire extinguisher can), and first-aid equipment. Also, there are emergency exits very close to the laboratories.

- The committee members conduct frequent meeting, seminar and awareness program to students, faculty members about laboratory safety and good laboratory practices.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

```
                    Biology Program
                    Quality assurance
                         (QA)
     ┌───────────────────────┼───────────────────────┐
 Faculty members        Students surveys      other Stake holders (employer,
 (Course report, CLO                          community, administrator,
 analysis resport)                            faculty members)
```

Faculty/Course coordinators in QA
- At the beginning of each semester, the course coordinators are decided and provided with the approved course specification to be taught.
- This course specification along with assessment rubrics and any other relevant information are provided to all the students taking that course.
- One of the main responsibility of the course coordinator is to ensure the timely and uniform delivery/assessment of the course at all the sections it is being taught in that particular semester.
- The course coordinator after consultation with all the teachers send recommendations in the course report regarding revision of the course learning outcome, revision of the assessment mode, modification of course content, requirements for special tools/equipment for implementing the course objectives or any other difficulty faced during that semester.
- This course report is then deliberated upon by the Academic Advisory Committee, Quality Assurance Committee and the Department council.
- If required, an internal/external expert committee is constituted for course evaluation.

Stakeholders involvement in QA
- Annually as part of indirect assessment of learning outcomes, various surveys are conducted to take the opinion of all the stakeholders; including, the student, faculty, employers, administrators and the community.
- Based on these recommendations if required the department council sends a request for modification in the aforesaid course to the College/University Council.
- The students are providing details of the course objectives and specification at the beginning of the semester.
- The students provide their feedback, suggestions and opinions in various surveys conducted by the quality assurance unit.
- The feedback is also obtained from students during the Final exams to receive the opinions about the Question papers after the completion of respective exams.

The above said points were strictly followed to ensure the quality assurance of the program.

More details about 'Quality assurance –manual' , Please visit the following link
5.1 Program Quality System Manual

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

The Students at Biology program need to take, Preparatory year Course, University Requirements courses & College elective courses. These courses are offered by Deanship of Preparatory Year, other colleges, and departments.

To ensure the course confirms to the program needs, the following steps are taken/proposed.
- Preparation & review of Course Specification in consultation with the program coordinators. (Proposed)
- Approval of Course report & Evaluation by department coordinator. (Proposed)
- Scheduled meeting with the course instructor and the respective departments for effective implementation of the course each semester. (Existing)

Quality of course taught by other department can be analyzed by verifying the CLOs reports and refer the data of following software's

- https://xamgate.web.app/
- https://edugate.mu.edu.sa/mu/ui/home.faces
- https://csz-mu.web.app/dashboard : Quality analysis called qgate

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

- To ensure the uniformity the program assigns a course coordinator at beginning of each semester.
- The coordinator along with the course team in all the sections prepares the course specifications, assessment schedule and study materials, including blueprint and lecture objectives, lab/clinical objectives, to ensure uniform delivery & assessment of course in all the section.
- The assessment measures are designed to evaluate the effectiveness of teaching methods for delivering the intended program outcomes.[**Annexure 1**]
- A range of assessments strategies that matches all aspects of the instructional plans are being used for different courses. The assessment strategies are planned to match the PLOs. [**Annexure 1**]
- The selection of appropriate assessments also matches courses and program objectives.
- All the courses of the biology program have specific learning objectives that are aligned with the program outcomes. Each course has 3-5 specific course outcomes, which are evaluated by appropriate assessment methods. Both direct and indirect assessment techniques are utilized to ensure that the desired program outcomes are achieved. (attach the matrix of PLOs and CLOs) [**Annexure 2**]
- The process of assessment is carried out by using a combination of course work such as quizzes, exams, projects, presentations, homework, etc., Where the grades on these exercises are directly tied to the course outcomes.
- The uniform pattern and similar questions were used in the final exam for both male and female sections.

4. Assessment Plan for Program Learning Outcomes (PLOs)

- The 'Environment Protection Technology' Program assesses and evaluates the extent to which its learning Outcomes (Los) are being met using a variety of instruments and methods on a regular basis. These procedures are used to collect the data needed for evaluation. After that, evaluation in the form of data interpretation is carried out to see how effectively the outcomes are being met. Finally, the results of both the assessment and evaluation processes are used to improve the program on a continuing basis. The assessment, evaluation, and feedback stages for the program's continuous improvement follow the three steps below:
- The LOs' assessment tools (i.e., collecting relevant data) are either direct or indirect. Direct assessments of LOs are generally based on course work, whereas indirect assessments are usually based on questionnaires. This step includes designing survey forms and questions that are appropriate for the specific and applicable date.
- The evaluation (interpreting) processes are then followed by analysing and comparing the data to a pre-set performance indicator, as well as reviewing those areas that scored relatively low.

The program's Assessment and Evaluation Plan (AEP) aims to evaluate all learning outcomes over the courses of two semesters in the academic years.

✦ **Analysis frequency:** Once in a year [Will combine a data of 2 semesters]

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Achievement of mission and goals of the program	Students, graduates, alumni, faculty, program heads, administrative staff, employers, Students advisory committee	Surveys, Data analysis KPIs	Once in the year
Students' Evaluation of Quality of learning experience in the Program	Final year Students	Surveys,	End of the academic year
Students' evaluation of the quality of the courses	All Students	Surveys Course report	Annual
Learning resources, facility and equipment	Students, faculty	Surveys, KPI report	End of the academic year
Average of the overall rating of employers for the proficiency of the program graduates	Employers	Survey KPI report	Annual
Student administration and support services	Students, graduates, alumni, faculty	Surveys, Data analysis KPIs	End of the academic year
Effectiveness of PLOS	Report	PLOs report	End of each semester
Graduate employability	Graduates, interview, employers, advisory committee	Surveys, Data analysis Interviews, KPIs	End of the academic year

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Faculty and staff employment processes	Faculty, program heads, advisory committee	Surveys, Interview, Data analysis and KPIs	End of the academic year
Program evaluation	Students, graduates, alumni, faculty, administrative staff, employers, independent reviewers	Surveys, interview, visits, data analysis PLOs report	End of the academic year
Research and community services	Students, graduates, program heads, alumni, faculty, administrative staff, employers, independent reviewers	Data analysis and KPIs	End of the academic year
Field training	Students	survey	End of each semester

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 (1445-46) 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	80%#	Program evaluation survey with students (indirect)	End of academic year
2	KPI-P-02	Students' evaluation of the quality of the courses	WDL	Program evaluation survey with students	End of semester
3	KPI-P-03	Completion rate	WDL	Data of graduated students	End of academic year
4	KPI-P-04	First-year students retention rate	WDL	Data of graduated students (1st year)	End of academic year
5	KPI-P-05	Students' performance in the professional and/or national examinations	WDL	Survey from Final Graduated Data	NA
6	KPI-P-06	Graduates' employability and enrolment in postgraduate programs	WDL	Survey from the Graduated students	End of academic year
7	KPI-P-07	Employers' evaluation of the program graduates proficiency	-	NA	NA
8	KPI-P-8	Ratio of students to teaching staff	WDL	Data from List of faculty & Student	End of academic year
9	KPI-P-9	Percentage of publications of faculty members	WDL	Data from the faculty research profile	End of academic year
10	KPI-P-10	Rate of published research per faculty member	WDL	Data from the faculty research profile	End of academic year

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
11	**KPI-P-11**	Citations rate in refereed journals per faculty member	*WDL*	Data from the faculty research profile	End of academic year
12	MU-P01	Proportion of full-time teaching and other staff actively engaged in community service activities.	*WDL*	Data from community service unit	End of academic year
13	MU-P02	Proportion of students have one notification or more	*WDL*	Data from e-register	Each semester
14	MU-P03	Proportion of deprived students	*WDL*	Data from e-register	Each semester
15	MU-P04	The number of student's research	*WDL*	Data from Scientific research unit	Each semester
16	MU-P05	Percentage of teaching staff participating in professional development activities.	*WDL*	Data from quality unit - Department	End of the year
17	KPI-BIO1	Stakeholder evaluation ratings of the Mission Statement and Objectives	*WDL*	Survey by quality member	End of the year

*including KPIs required by NCAAA

tentative target, might be revised after enrolling the students

WDL – It will be determined later after successful completion of first academic year

H. Specification Approval Data:

Council / Committee	7th / Department Council for Environment Protection Technology
Reference No.	7th
Date	10/10/2023 [25/03/1445H]