هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد
NCAAA

2024
TP-151

Program Specification

— (Bachelor)

Program: **Bachelor of Science in Environmental Science**	
Program Code (as per Saudi university ranking): **052101**	
Qualification Level: **6**	
Department: **Biology**	
College: **Science**	
Institution: **Imam Mohammed Ibn Saud Islamic University**	
Program Specification: **New** ☒ **updated*** ☐	
Last Review Date: **-**	

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information:

1. Program's Main Location:

The main campus for the Male Section

King Abdullah City for the Female Section

2. Branches Offering the Program (if any):

None

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

This program is designed to be a joint effort between Shaanxi University of Science & Technology (China) and Imam Mohammad Ibn Saud Islamic University. The aim is to offer a joint program where students can earn accredited certificates from both universities. The program will be under the supervision of both universities, and after a preliminary agreement, an official agreement will be signed between the two universities.

4. Professions/jobs for which students are qualified

الرقم المرجعي للمهنة	اسم المهنة	No
213301	أخصائي بيئي	1
325702	مفتش حماية بيئية	2
134906	مدير محطة تنبؤات جوية ورصد بيئي	3
226301	أخصائي حماية بيئة	4
134908	مدير عمليات حماية بيئة	5
213305	أخصائي محميات طبيعية	6
231018	أستاذ علوم بيئة	7
235906	باحث أكاديمي	8
213302	أخصائي تلوث الهواء	9
213303	أخصائي جودة المياه	10
213304	أخصائي إعادة تأهيل تربة	11

5. Relevant occupational/ Professional sectors:

قطاع البيئة
قطاع التعليم
قطاع الزراعة

6. Major Tracks/Pathways (if any):

Not applicable

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

exit points/awarded degree	Credit hours
Intermediate exit point after completion of the courses of the first academic two years (the first four semesters)/ Diploma in Environmental Sciences.	70

8. Total credit hours: (136 credit hours)

B. Mission, Objectives, and Program Learning Outcomes:

1. Program Mission:

To equip students with the necessary knowledge and practical skills that enable them to meet the demands of community services in the environmental sector and contribute to progress of the scientific research.

2. Program Goals:

G1. To become a distinguished program in "Environmental Science" that adheres to the latest scientific education procedures, in line with the Kingdom's major strategies and plans, and meets the standards of top universities.

G2. To equip students with practical and applicable knowledge that will enable them to practice environmental science disciplines professionally.

G3. To provide students with practical skills that significantly enhance their competitive ability for job opportunities upon successful completion of the program.

G4. To provide students with extensive knowledge and reliable technical skills, which will serve as a solid foundation for them to pursue master's or Ph.D. programs in local or international universities.

G5. To be a distinguishable source of highly qualified graduates who can meet the demands of the labour market, and thus direct a larger proportion of relevant jobs to the national workforce.

G6. To be a significant contributor to reducing the gap between university learning outcomes and current/future labour market demands.

G7. To be a valuable resource for the scientific community to effectively take part in the progress of the environmental sector in the kingdom.

G8. To establish effective partnerships with local and international institutions for collaborative educational and other reciprocal activities.

3. Program Learning Outcomes*

Knowledge and Understanding

K1	Discuss comprehensively the fundamentals of environmental science and the principles related to the diverse ecosystems.
K2	Explain the intricate relationships at various levels between human activities, and the natural and impacted environments.
K3	Clarify the various environmental issues including sustainability, biodiversity, conservation, pollution, economics, and green environment.
K4	Outline the environmental law provisions and the methods relevant to impact assessment and monitoring of the environment.

Skills

S1	Relate between the different theories and concepts of environmental science and real-world problems.
S2	Evaluate the environmental challenges and apply the necessary approaches to investigate these challenges through various identifying and measuring methods.
S3	Perform research work in the field of environmental science by employing practical skills and the proper research tools.
S4	Analyze the synthesized environmental data using the appropriate statistical analytical methods.

Values, Autonomy, and Responsibility	
V1	Demonstrate the ability to perform the assigned work independently and collaborate with interdisciplinary teams to achieve common goals.
V2	Participate in discussion of scientific issues professionally, and present research data effectively through different modes for varied audiences.
V3	Show accountability and share positively in specialized events and decision-making processes.
V4	Adhere to the relevant ethical rules and regulations while working in the field of environmental science.

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

3. Program Learning Outcomes (Exit Point)

Knowledge and Understanding

K1	Demonstrate the various major topics of environmental science, including those relevant to the environments with natural and influenced conditions.
K2	Identify the interactions between the various human activities and the diverse range of environments.
K3	Describe the various environmental processes in the terrestrial and aquatic environments.

Skills

S1	Apply the different theoretical bases and concepts of environmental science to solve real-life problems.
S2	Assess the current environmental challenges, employ the appropriate approaches of inspection, and use the proper estimating and analytical methods.

Values, Autonomy, and Responsibility

V1	Display independence to accomplish the assigned tasks and cooperate actively with a team.
V2	Share in the specialized meetings and communicate scientific data clearly either orally or in written formats.
V3	Follow the ethics and regulations related to the field of environmental science while performing a field study.

C. Curriculum:

1. Curriculum Structure*

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	10	20	15%
	Elective**	3	6	4 %
College Requirements	Required	7	22	16%
	Elective	-	-	-
Program Requirements	Required	29	74	55%
	Elective	2	4	3 %
Capstone Course/Project	Required	1	4	3 %
Field Training/ Internship	Required	1	6	4 %
Residency year	-	-	-	-
Others	-	-	-	-
Total		53	136	100%

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

** Free courses (total 6 credits)

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	EVS 1110	Fundamentals of Environmental Science	Required	-	4	Program
	EVS 1112	Basics of Biology	Required	-	4	program
	EVS 1114	Terrestrial and Aquatic Ecology	Required	-	4	program
	ENG 1140	English (1)		-	2	College
	University Requirement (1)	-	Required	-	2	Institution
	University Requirement (2)	-	Required	-	2	Institution
Level 2	MAT 1109	Applied Calculus for Environmental Science	Required	-	4	College
	STA 1112	Statistical Analysis of Environmental Data (1)	Required	-	3	College
	CHM 1106	Basics of Chemistry	Required	-	4	College
	ENG 1195	English (2)	Required	-	2	College
	EVS 1120	Plant Ecosystems	Required	EVS1110 EVS 1112	3	Program
	University Requirement (3)	-	Required	-	2	Institution
Level 3	STA 1213	Statistical Analysis of Environmental Data (2)	Required	MAT1109 STA1112	3	College
	EVS 1230	Biodiversity	Required	EVS1110 EVS1112 EVS1120	2	Program
	CHM 1205	Environmental Analytical Chemistry	Required	CHM1106	4	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 4 (Exit Point)	EVS 1232	Conservation Biology and Bio-extinction	Required	EVS 1110 EVS 1112 EVS 1114	3	Program
	University Requirement (4)	-	Required	-	2	Institution
	Quran University Requirement (5) Quran 1001	-	Required		2	Institution
		Free Course***	Elective		2	Institution
	EVS 1240	Environmental Biotechnology	Required	EVS1110	3	Program
	EVS 1242	Environmental Microbiology	Required	EVS1110 EVS1112	3	Program
	EVS 1244	Fresh and Marine Water Algae	Required	EVS1110 EVS1114	3	Program
	EVS 1246	Principles of Ecotoxicology	Required	EVS1110 EVS1114	3	Program
	EVS 1248	Arab Gulf and Red Sea Ecosystems	Required	EVS1110 EVS1120 EVS1114	2	Program
	University Requirement (6)	-	Required	-	2	Institution
	University Requirement (7)	-	Required		2	
Level 5	EVS 1350	Green Infrastructure technologies	Required	EVS1110 EVS1240	3	program
	EVS 1352	Sustainable Fisheries and Aquaculture	Required	EVS1110 EVS1114	3	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 5	EVS 1354	Environmental Impact Assessment	Required	EVS1110 EVS1114	3	Program
	EVS 1356	Epigenetics	Required	EVS1112	2	Program
	EVS 1358	Environmental Pollution and Biodegradation	Required	EVS1110 EVS1114	2	Program
	EVS 1359	Fauna and Flora in Local Environment	Required	EVS1110 EVS1114	3	Program
	Elective Course (1)	-	Elective	-	2	Program
Level 6	EVS 1360	Environmental Biomonitoring and Remediation	Required	EVS1110 EVS1358	3	Program
	EVS 1362	Protected Areas	Required	EVS1110 EVS1114 EVS1120	2	Program
	EVS 1364	Ecology of Palm Tree	Required	EVS1110 EVS1120	3	Program
	EVS 1366	Integrated Coastal Ecosystems	Required	EVS1110 EVS1114	2	Program
	EVS 1368	Atmospheric Environments	Required	EVS1110 EVS1360	2	Program
	University Requirement (7)	-	Required	-	2	Institution
	University Requirement (8)	-	Required	-	2	Institution
		Free Course	Elective	-	2	Institution
Level 7	EVS 1470	Breeding Ecology of Camels	Required	EVS1110 EVS1112	3	Program
	EVS 1472	Waste Management and Recycling	Required	EVS1110 EVS1358	2	Program
	EVS 1474	Environmental Law and Policy	Required	EVS1110 EVS1114	2	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	EVS 1476	Renewable Energy Systems	Required	EVS1110 EVS1358	2	Program
	EVS 1478	Remote Sensing Applications	Required	EVS1110 EVS1368	3	Program
	Elective Course (2)	-	Elective	-	2	Program
	University Requirement (9)	-	Required	-	2	Institution
	-	Free Course	Elective		2	Institution
Level 8	EVS 1493****	Field Training	Required	EVS1110 EVS1120 EVS1114	6	Program
	EVS 1499****	Graduation Research	Required	EVS1110 EVS1120 EVS1114 EVS1292	4	Program

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

*** Total credits assigned for free courses are 6 credits

**** The student must complete 126 credits before starting field training and graduation research

Elective courses

Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
EVS 1010	**Sustaining of Natural Resources**	Elective	EVS 1110 EVS 1114	2	Program
EVS 1012	**Reclamation of Arid and Impacted Lands**	Elective	EVS 1110 EVS 1114 EVS1120	2	Program
EVS 1014	**Foundations of Sustainable Development**	Elective	EVS 1110 EVS 1114	2	Program
EVS 1016	**Conservation of Wildlife**	Elective	EVS 1110 EVS 1112 EVS 1114	2	Program
EVS 1018	**Animal Behaviour and Environment**	Elective	EVS1110 EVS1112	2	Program
EVS 1020	**Evolutionary and Ecological Genetics**	Elective	EVS1112	2	Program
EVS 1022	**Industrial Waste and Carbon Emissions**	Elective	EVS 1110 EVS 1114 EVS1358	2	Program
EVS 1024	**Global Climate Change**	Elective	EVS 1110 EVS1114 EVS1368	2	Program
EVS 1026	**Environmental Economics**	Elective	EVS 1110 EVS1114 EVS1366	2	Program

University Required Courses

University-required courses (1–10) should be chosen from the following packages based on the indicated rules:

Package	Course Code	Course Title	Credit Hours	Rules
Islamic knowledge and values	QUR 1001	Quran	2	The student chooses two courses, one of which should be the Quran course
	HAD 1001	Studies in the Sunnah	2	
	JRS 1001	Objectives of Shariah	2	
	IDE 1001	Creed	2	
	JR 1001	Jurisprudence of Worship and Family		
Historical, national, and social knowledge and values	HST 1001	Studies in the Prophet's biography	2	The student chooses two courses
	HST 1002	National History	2	
	SOS 101	Voluntary Work Skills	2	
	CUL 1001 CIS 101	Jurisprudence of Rights and Duties	2	
	GEO 1011	Environment and Sustainable Growth	2	
Professional skills and labor market	RHB 1001	Work Value and Ethics	2	The student chooses two courses
	BUS 1001	Innovation and Entrepreneurship	2	
	EDM 1001	Leadership Skills	2	
	FIN 1001	Financial Planning Skills	2	
	ENG 1001	English Language Skills	2	
	BC 1001	Communications Skills	2	

Communicative and personal skills	ARB 1001	Linguistic Skills	2	The student chooses two courses
	ART 1001	Editing and Speech Skills	2	
	PSY 1001	Mental Health	2	
	BIO 1001	General Knowledge of Health Care	2	
Academic skills	TCM 1001	University Education Skills	2	The student chooses two courses
	RHE 1001	Reading Skills	2	
	IT 1001	Technical Skills	2	
	EDP 1001	Thinking Skills	2	
	STA 1001	Basics of Statistics	2	

3. Course Specifications:

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

https://imamuedusa-my.sharepoint.com/:b:/g/personal/harudayni_cloud_imamu_edu_sa/Eb9J3qOSUVJKvhCbF9_CNEkBzR33BhDBi7sb6EM5WEmTIg?e=2BpLKq

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	K4	S1	S2	S3	S4	V1	V2	V3	V4
EVS 1110	I	I			I	I	I		I			
EVS 1112	I	I			I	I			I			
EVS 1114	I	I			I	I			I		I	
STA 1112	I	I	I		I	I		I	I	I		
EVS 1120	I	I			I	I			I			I
MAT 1109	I	I	I		I	I		I	I	I		
STA 1213	I	I			I	I		I	I	I		
EVS 1230	I	I	I		I	I	I		I		I	I
CHM 1106	I	I	I		I	I		I	I	I		
CHM 1205	I	I	I		I	I		I	I	I		
EVS 1232	P	P	P		P	P			P	P		
EVS 1240	P	P	P		P	P		P	P	P		
EVS 1242	P	P	P		P	P		P	P	P		
EVS 1244	P	P	P		P	P			P	P		P
EVS 1246	P	P	P		P	P		P	P	P		
EVS 1248	P	P	P		P	P		P	P	P		
EVS 1350	P	P	P		P	P	P		P	P	P	
EVS 1352	P	P	P		P	P		P	P	P	P	
EVS 1354	P	P	P		P	P	P	P	P	P	P	
EVS 1356	P	P	P		P	P			P	P		

Course code & No.	Program Learning Outcomes											
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility			
	K1	K2	K3	K4	S1	S2	S3	S4	V1	V2	V3	V4
EVS 1358	P	P	P		P	P		P	P	P		P
EVS 1359	P	P	P		P	P		P	P	P		P
EVS 1360	P	P	P	P	P	P		P	P	P		P
EVS 1362	M	M	M		M	M		M	M	M	M	M
EVS 1364	M	M		M	M	M	M		M	M	M	
EVS 1366	M	M	M		M	M	M		M	M		M
EVS 1368	M	M		M	M	M		M	M	M		M
EVS 1470	M	M	M		M	M	M		M	M		M
EVS 1472	M	M	M		M	M	M		M	M		M
EVS 1474	M	M		M	M	M		M	M	M		M
EVS 1476	M	M	M		M	M		M	M	M		M
EVS 1478	M	M		M	M	M		M	M		M	M
EVS 1493	M	M	M	M	M		M	M	M	M		M
EVS 1499	M	M	M		M	M	M	M	M	M	M	

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

Consistency between mission and goals of the program and the college and institutional mission and goals:

Imam Mohammed Ibn Saud University (IMSIU) mission and strategic goals:

Offering high-quality academic programs and conducting high-impact research through a stimulating environment, well-governed administrative systems, advanced technology, sustainable resources, and effective partnerships to achieve competitive outputs that would meet the needs of the labor market and contribute in building a knowledge economy and serving the local and global community.

The University's strategic plan focused on six main areas:

- Education, learning and acquisition.
- Research, innovation and entrepreneurship.
- Partnerships and community responsibility.
- Institutional excellence.
- Financial sustainability.
- National awareness.

College of Science's mission and objectives:

Provide distinguished academic programs accredited in fundamental sciences and their applications to qualify national cadres to meet the requirements of development and plans to localize technology in order to contribute effectively to the development of scientific research and community service.

The college's objectives are

- Prepare qualified graduates with high scientific skills to suit the labor market requirements.
- Create new graduate degree programs and expand bachelor's programs.
- Maintain the excellence in scientific research.
- Develop learning resources.
- Improve the role of the college to serve the community.

Mapping College's Goals with the Program's Goals

College's Goals	PGs
CG1. Prepare qualified graduates with high scientific skills to suit the labour market requirements.	PG1, PG4
CG2. Create new graduate degree programs and expand bachelor's programs.	PG3, PG5
CG3. Maintain excellence in scientific research.	PG2, PG7
CG4. Develop learning resources.	PG1, PG4
CG5. Improve the role of the college to serve the community.	PG1, PG4

Mapping College's Goals with the Program's Goals and LOs

Mapping Collage's Goals with the Program's Goals						
PLOs	Program's Goals	Collage's Goals				
		CG1	CG2	CG3	CG4	CG5
K1	PG1	√			√	√
K2	PG2			√		
K3	PG3		√			
K4	PG4			√		
S1	PG4	√			√	√
S2	PG5	√				
S3	PG6	√				
S4	PG6	√				
V1	PG7			√		
V2	PG8			√		
V3	PG6			√		
V4	PG6			√		

Mapping University's Goals with the Program's Goals

Program's Goals	University's Goals							
	UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
PG1	√							
PG2		√						
PG3			√				√	
PG4	√					√		√
PG5			√					
PG6				√				
PG7		√		√				
PG8					√			

Mapping University's Goals with the Program Goals and Program Learning Outcomes (PLOs)									
PLOs	Program's Goals	University's Goals							
		UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8
K1	PG1	√							
K2	PG2		√						
K3	PG3			√					
K4	PG3			√					
S1	PG4	√							
S2	PG5		√						
S3	PG6		√						
S4	PG6	√				√			
V1	PG7		√		√				
V2	PG8						√		
V3	PG6						√		
V4	PG6						√		

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.

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.

Teaching and Learning Strategies

5.1 Active Learning Techniques

- Collaborative Group Projects: Students work in diverse teams to tackle complex environmental problems. Each project requires them to analyze a real-world issue and develop solutions using environmental concepts. This promotes analytical and problem-solving skills while enhancing teamwork and communication.
- 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 environmental ideas clearly and accurately.

5.2 Project-Based Learning

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

5.3 Technology Integration

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

5.4 Inquiry-Based Learning

- Research Assignments: Assign students to conduct literature searches on specific environmental 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.
- Problem Posing and Exploration: Create opportunities for students to formulate their own environmental questions based on real-world scenarios. This approach encourages independent thinking and critical analysis, allowing them to explore topics that pique their interest.

5.5 Curricular Activities:

Workshops and Seminars

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

Field Experience

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

5.6 Extra-Curricular Activities

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.
- Outreach Initiatives: Organize community outreach programs, such as environmental sciences tutoring for local high school students or workshops for underrepresented groups. This promotes responsible citizenship and ethical engagement with the community.

Conferences and Competitions or national specific exam

- Participation in environmental science Competitions: Encourage students to enter national and international environmental science competitions, fostering their analytical and creative problem-solving abilities.
- 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.

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.
- 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.

   Generally, the assessment and feedback of teaching and learning strategies are based on:
   - 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.

- 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.

The following table shows the teaching and learning strategies, and the relevant assessment methods (direct and indirect methods):

Domain	PLOs	Teaching and learning strategies	Assessment Methods (Direct and Indirect)
Knowledge and Understanding	K1	Interactive Lecture Discussion and Dialogue Mind Maps Concept Maps Standard Method Inductive Method Self-Learning Cooperative Learning Field Visits	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations
	K2	Interactive Lecture Discussion and Dialogue Mind Maps Concept Maps Standard Method Inductive Method Self-Learning Cooperative Learning Field Visits	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback	Indirect Questionnaires Surveys Focus Groups

		Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Course Evaluations
	K3	Interactive Lecture Discussion and Dialogue Mind Maps Concept Maps Standard Method Inductive Method Self-Learning Cooperative Learning Field Visits	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations
	K4	Interactive Lecture Discussion and Dialogue Mind Maps Concept Maps Standard Method Inductive Method Self-Learning Cooperative Learning Field Visits	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations

Skills	S1	Laboratory sessions Tutorials 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 Project-Based Learning	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations
	S2	Laboratory sessions Tutorials Discussion and dialogue/inquiry Standard and inductive method Problem solving Brainstorming Discovery learning Flipped classroom Cooperative learning Case study Role playing	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment

		Field visits Presentation activities Self-learning Cognitive journeys Practical Application Microteaching Modeling Simulation Project-Based Learning	
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations
	S3	Laboratory sessions Tutorials 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 Project-Based Learning	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment

		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations
	S4	Laboratory sessions Tutorials 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 Project-Based Learning	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations

Values, Autonomy, and Responsibility	V1	Modeling Dialogue and discussion Self-learning Collaborative learning	<u>Direct</u> Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		<u>Curricular activities</u> Workshops and Seminars Field Experience Assessment and Feedback <u>Extra-curricular activities</u> Science Clubs Conferences and Competitions or national specific exam Leadership Development	<u>Indirect</u> Questionnaires Surveys Focus Groups Course Evaluations
	V2	Modeling Dialogue and discussion Self-learning Collaborative learning	<u>Direct</u> Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		<u>Curricular activities</u> Workshops and Seminars Field Experience Assessment and Feedback <u>Extra-curricular activities</u> Science Clubs Conferences and Competitions or national specific exam Leadership Development	<u>Indirect</u> Questionnaires Surveys Focus Groups Course Evaluations

	V3	Modeling Dialogue and discussion Self-learning Collaborative learning	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations
	V4	Modeling Dialogue and discussion Self-learning Collaborative learning	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment
		Curricular activities Workshops and Seminars Field Experience Assessment and Feedback Extra-curricular activities Science Clubs Conferences and Competitions or national specific exam Leadership Development	Indirect Questionnaires Surveys Focus Groups Course Evaluations

6. Assessment Methods for program learning outcomes.

The assessment methods (direct and indirect) were formulated to assess the achievement of program learning outcomes in all areas.

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.

Assessment Methods:

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 environmental sciences and their ability to articulate environmental 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.

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.

6.1.2. Projects and Presentations

Environmental sciences-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.

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 environmental sciences topic or application. This assessment will gauge their

research abilities and understanding of the historical context and applications of environmental sciences.

6.1.3. Laboratory Assessments

Environmental sciences Software Labs: Throughout the program, students will participate in lab sessions focused on using environmental sciences 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.

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.

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.

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.

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.

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.

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.

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 and analytical skills. Direct assessments will include quizzes, exams, and a group project on environmental science concepts.

Year 2: Intermediate courses will evaluate environmental science skills. Assessments will include projects and lab assignments.

Year 3: Advanced courses focusing on environmental science methods and ethical considerations through research papers and peer evaluations.

Year 4: The Capstone course EVS 1499 will assess literature search skills 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, leadership in team settings, and self-evaluation 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 environmental sciences knowledge in real-world settings, reinforcing their understanding and enhancing their skill set.

6.3.2. Field Experience Evaluation:

Students will be assessed based on their performance in the field training (EVS 1493), including their ability to apply environmental 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. Students will submit a final report detailing their internship experiences, the projects they worked on, and the environmental science techniques they employed. This report will be graded on clarity, relevance, and the integration of learned concepts.

6.3.3. 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. This analysis will encourage students to connect their practical experiences back to the theoretical frameworks studied throughout the program.

The following table shows the assessment methods (direct and indirect) of the PLOs

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 at least 70% CLO achievement	How? Calculating students' pass rate in the EVS 1110, EVS 1120, EVS 1230, EVS 1240 and EVS 1242 courses. Who? Course coordinator. When? 1st and 2nd years. 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 at least 75% CLO achievement	How? Calculating students' pass rate in the EVS 1114, EVS 1120, EVS 1232, EVS 1244 and EVS 1246 courses. Who? Course's coordinator. When? 1st and 2nd years. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually

			Assessment Methods	Targeted Level of Performance	Measurement / Responsibility
		K3	Direct Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 80% CLO achievement	How? Calculating students' pass rate in the EVS 1350, EVS 1352, EVS 1360, EVS 1362, EVS 1470, EVS 1472 and EVS 1480 courses. Who? Course's coordinator. When? 3rd and 4th years. 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 at least 85% CLO achievement	How? Calculating students' pass rate in the EVS 1354, EVS 1356, EVS 1358, EVS 1364, EVS 1366, EVS 1368, EVS 1474, EVS 1476, EVS 1478 and EVS 1482 courses. Who? Course's coordinator. When? 3rd and 4th years. 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 at least 70% CLO achievement	How? Calculating students' pass rate in the EVS 1350, EVS 1352, EVS 1354, EVS 1356, EVS 1358, EVS 1360, EVS 1362, EVS 1364, EVS 1366 and EVS1368 courses. Who? Course's coordinator. When? 3rd year. Where? Biology Department.
			Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
		S2	Direct Exams Quizzes Projects	85% of students have at least	How? Calculating students' pass rates in the EVS 1350, EVS 1352, EVS 1354,

		Presentations Laboratory Assessments Self-assessment Peer assessment	75% CLO achievement	EVS 1356, EVS 1358, EVS 1360, EVS 1362, EVS 1364, EVS 1366 and EVS1368 courses. Who? Course coordinator. When? 3rd 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 at least 80% CLO achievement	How? Calculating students' pass rates in the EVS 1470, EVS 1472, EVS 1474, EVS 1476, EVS 1478, EVS 1480, EVS 1482 and EVS 1499 courses. Who? Course coordinator. When? 4th 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 at least 85% CLO achievement	How? Calculating students' pass rates in the EVS 1470, EVS 1472, EVS 1474, EVS 1476, EVS 1478, EVS 1480, EVS 1482 and EVS 1499 courses. Who? Course's coordinator. When? 4th 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 at least 70% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization is in coordination with the 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 at least 75% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually	
	V3	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 80% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years.

				Where? The training organization in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	V4	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 85% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually

D. Student Admission and Support:

1. Student Admission Requirements

Admissions occur only once during the summer vacation through the Unified E-Admission Portal for public universities in the Riyadh region, with no admissions for the second semester. Students can apply to IMSIU University via this portal, allowing them to complete their applications electronically and select their academic major based on their qualifications, grades, and preferences without needing to visit the university. Admission into the program will be granted based on the student's GPA after successfully completing the preparatory program. The Deanship of Admission and Registration oversees the admissions process. Eligibility Requirement is stated in IMSIU Undergraduate Study and Examination. Please note that the Deanship for Registration provides an admission guide, available via the link Admission 1446 .

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 Bachelor of Science in environmental sciences 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 Bachelor of Science in environmental sciences Program offers specialized counselli 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 environmental sciences 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 environmental 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, gifted, and talented students).

The Bachelor of Science in environmental sciences 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.

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	Biology Botany Zoology	Aquatic Ecology Terrestrial Ecology Cell Biology Plant Ecosystems Ecotoxicology Biochemistry Breeding Ecology	Teaching and research experience	4	4	8
Associate Professor	Biology Botany Zoology	Aquatic Ecology Terrestrial Ecology Cell Biology Molecular Biology Genetics Biotechnology Plant Physiology Plant Ecosystems Ecotoxicology Microbiology	Teaching and research experience	6	6	12
Assistant Professor	Biology	Biotechnology Cell Biology	Teaching and research experience	6	6	12

	Botany Zoology	Genetics Animal Taxonomy Plant Taxonomy Biochemistry				
Lecturer	Biology Botany Zoology	Cell Biology Molecular Biology Genetics Biotechnology Plant Physiology Aquatic Ecology Ecotoxicology Terrestrial Ecology Microbiology	Teaching and research experience	5	5	10
Teaching Assistant	Biology. Botany Zoology Biotechnology	-	Teaching and research experience	5	5	10
Technicians and Laboratory Assistant	Biology Botany, Zoology Biotechnology	-	Technical skills for lab support	5	5	10
Administrative and Supportive Staff	-	-	Expertise in office management and coordination skills	2	2	4
Others (specify)	-	-	-	-	-	-

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

Learning resources required by the Program (textbooks, references, e-learning resources and 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's Central Library and IT Deanship.

Required Learning Resources

- **Textbooks:** Core and advanced texts in environmental sciences.
- **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

- Environmental 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, Vortexes, Water baths, for practical applications.

Library

- Environmental science Section: A well-stocked section with textbooks, reference books, research journals, and online resources related to Environmental 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 Environmental 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 Environmental 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 Environmental 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.

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to 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.

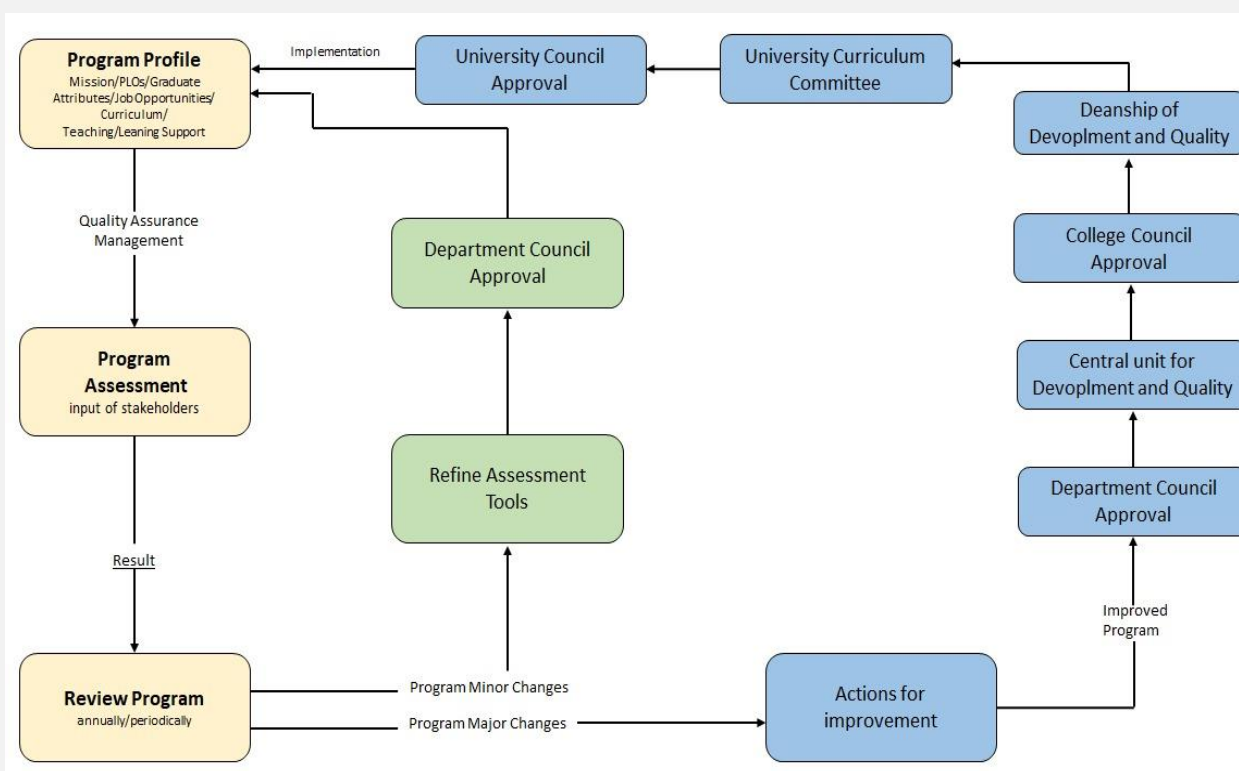All the previous processes follow the Teaching\Learning Quality Assurance Process Diagram:

Figure 1: Teaching\Learning Quality Assurance Process Diagram

2. 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 environmental sciences.

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.

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

The Department adopted the following processes to ensure 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 exams, and final exams are unified in both sections.

4. Assessment Plan for Program Learning Outcomes (PLOs)

The designed plan ensures the assessment of all Program Learning Outcomes PLOs at least twice in the bachelor program's cycle.

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 assess and enhance program learning outcomes systematically.

Phases of Assessment

Phase 1. Data-Collection Methodology: Use 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 5. Evidence Interpretation: Analyze and interpret the collected data to evaluate performance against learning outcomes.

Phase 6. 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).

The following tables show time and executive plans for the assessment of PLOs:

Domain	PLOs	Year 1	Year 2	Year 3	Year 4
Knowledge and Understanding	K1	✓	✓		
	K2	✓	✓		
	K3			✓	✓
	K4			✓	✓
Skills	S1			✓	
	S2			✓	
	S3				✓
	S4				✓
Values, Autonomy, and Responsibility	V1		✓		✓
	V2		✓		✓
	V3		✓		✓
	V4		✓		✓

Domain	PLOs	Assessment Methods (Direct and Indirect)	Targeted Performance (%)	Implementation plan How? Who? When? Where?
Knowledge and Understanding	K1	<u>Direct</u> Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 70% CLO achievement	How? Calculating students' pass rate in the EVS 1110, EVS 1120, EVS 1230, EVS 1240 and EVS 1242 courses. Who? Course coordinator. When? 1st and 2nd years. 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 at least 75% CLO achievement	How? Calculating students' pass rate in the EVS 1114, EVS 1120, EVS 1232, EVS 1244 and EVS 1246 courses. Who? Course's coordinator. When? 1st and 2nd years. 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 at least 80% CLO achievement	How? Calculating students' pass rate in the EVS 1350, EVS 1352, EVS 1360, EVS 1362, EVS 1470, EVS 1472 and EVS 1480 courses. Who? Course's coordinator. When? 3rd and 4th years. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually

	K4	<u>Direct</u> Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 85% CLO achievement	How? Calculating students' pass rate in the EVS 1354, EVS 1356, EVS 1358, EVS 1364, EVS 1366, EVS 1368, EVS 1474, EVS 1476, EVS 1478 and EVS 1482 courses. Who? Course's coordinator. When? 3rd and 4th years. Where? Biology Department.
		<u>Indirect</u> Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
Skills	**S1**	<u>Direct</u> Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 70% CLO achievement	How? Calculating students' pass rate in the EVS 1350, EVS 1352, EVS 1354, EVS 1356, EVS 1358, EVS 1360, EVS 1362, EVS 1364, EVS 1366 and EVS1368 courses. Who? Course's coordinator. When? 3rd year. Where? Biology Department.
		<u>Indirect</u> Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	S2	<u>Direct</u> Exams Quizzes Projects Presentations Laboratory Assessments	85% of students have at least 75% CLO achievement	How? Calculating students' pass rates in the EVS 1350, EVS 1352, EVS 1354, EVS 1356, EVS 1358, EVS 1360, EVS 1362, EVS 1364, EVS 1366 and EVS1368 courses. Who? Course coordinator.

		Self-assessment Peer assessment		When? 3rd year. Where? Biology Department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	S3	<u>Direct</u> Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 80% CLO achievement	How? Calculating students' pass rates in the EVS 1470, EVS 1472, EVS 1474, EVS 1476, EVS 1478, EVS 1480, EVS 1482 and EVS 1499 courses. Who? Course coordinator. When? 4th year. Where? Biology Department.
		<u>Indirect</u> Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	S4	<u>Direct</u> Exams Quizzes Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 85% CLO achievement	How? Calculating students' pass rates in the EVS 1470, EVS 1472, EVS 1474, EVS 1476, EVS 1478, EVS 1480, EVS 1482 and EVS 1499 courses. Who? Course's coordinator. When? 4th year. Where? Biology Department.
		<u>Indirect</u> Questionnaires Surveys Focus Groups		Who? Development and Quality Unit When? Annually

		Course Evaluations		
	V1	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 70% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization is in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
Values, Autonomy, and Responsibility	**V2**	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 75% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually

	V3	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 80% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually
	V4	Direct Projects Presentations Laboratory Assessments Self-assessment Peer assessment	85% of students have at least 85% CLO achievement	How? Evaluating students' performance in field training sessions (EVS 1292 and EVS 1493 courses). Who? Training supervisor in coordination with the supervisor from the department. When? 2nd and 4th years. Where? The training organization in coordination with the Biology department.
		Indirect Questionnaires Surveys Focus Groups Course Evaluations		Who? Development and Quality Unit When? Annually

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Faculty, program leaders, administrative staff	Surveys, interviews	End of the 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 the academic year
Partnerships (e.g., industry collaborations)	Employers, program leaders, alumni	Surveys, interviews, reports	End of the 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 the academic year
Alumni Success	Alumni, employers	Surveys, interviews	Annually
Resource Allocation	Faculty, administrative staff	Financial audits, surveys	End of the 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.)

6. 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-P-01**	Students' Evaluation of Quality of learning experience in the program (Average of the overall rating of final year students of the quality of learning experience in the program, satisfaction with the various services offered by the program (restaurants, transport, sports facilities, academic, vocational, psychological guidance..), student satisfaction with the adequacy and diversity of learning sources (references, periodicals, information databases... etc.) 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
2	**KPI-P-02**	Students' evaluation of the quality of the courses (Average of students' overall rating for the quality of courses on a five-point scale in an annual survey)	The average rating for the two semesters of 4.0/5.0	Annual student survey (5-point scale)	End of each semester
3	**KPI-P-03**	Completion rate (In each cohort, the proportion of undergraduate students who completed the program in minimum time)	85% completion in minimum time	Program records and tracking	Annually, at graduation

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
Teaching and Learning Standard					
4	**KPI-P-04**	First-year students retention rate (Percentage of first-year undergraduate students who continue at the program the following year to the total number of first-year students in the same year)	75% retention rate	Comparison of first-year enrollment to second-year enrollment	Annually, after first-year completion
5	**KPI-P-05**	Students' performance in the professional and/or national examinations (Percentage of students or graduates who were successful in the professional and/or national examinations, or their score average and median (if any))	80% pass rate	Analysis of examination results	Annually, after examination results are published
6	**KPI-P-06**	Graduates' employability and enrolment in postgraduate programs (Percentage of graduates from the program who, within a year of graduation, were: a. employed within 12 months, b. enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year)	70% employed or enrolled	Graduate follow-up survey and employment records	Six months post-graduation

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
Teaching and Learning Standard					
7	KPI-P-07	Employers' evaluation of the program graduate's proficiency (Average of the overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey)	Average rating of 4.0/5.0	Annual employer survey (5-point scale)	Annually, after graduation
Teaching Staff Standard					
8	KPI-P-08	Ratio of students to teaching staff (Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program)	15:1 students-to-staff ratio	Program records	Annually
9	KPI-P-09	Percentage of publications of faculty members (Percentage of full-time faculty members who published at least one research paper during the year to total faculty members in the program)	60% of faculty members	Program publication records	Annually
10	KPI-P-10	Rate of published research per faculty member (The average number of refereed and/or published research per faculty member during the year (total number of refereed and/or published research to the total number of full-time or equivalent faculty members during the year))	2 publications per faculty member	Program publication records	Annually

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
Teaching and Learning Standard					
11	**KPI-P-11**	Citations rate in refereed journals per faculty member (The average number of citations in refereed journals from published research per faculty member in the program (total number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published))	Average of 10 citations per faculty member	Program citation records	Annually
12	**KPI-P-12**	Graduates' satisfaction with career preparation (The average rating)	4.0 of 5.0	Annual student survey (5-point scale)	Six months post-graduation
13	**KPI-P-13**	Students' research skills assessment (The average rating)	4.0 of 5.0	Exit-survey (5-point scale)	End of the academic program

M: male; F: female; C: combined

ND: Not detected

* including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	Department of Biology Council
Reference No.	Meeting No. 2
Date	25/8/2024