BS IN ENVIRONMENTAL SUSTAINABILITY & CLIMATE CHANGE

DEPARTMENT OF ENVIRONMENTAL SCIENCE

FACULTY OF SCIENCES

INTERNATIONAL ISLAMIC UNIVERSITY

ISLAMABAD

2024

Program Name: BS in Environmental Sustainability and Climate Change
Qualification Level: Undergraduate
Department: Department of Environmental Science
Faculty: Faculty of Sciences

Contents

A. Program Identification and General Information

1. Program Name:
BS in Environmental Sustainability and Climate Change
2. Department/Faculty Offering the Program:
Department of Environmental Science / Faculty of Sciences
3. Reasons for Establishing the Program (New Program Proposals): (Economic, social, cultural, and technological reasons, and national needs and development, etc.)
The Department of Environmental Science launched BS in Environmental Science Programme in Fall 2007 semester. At that time, IIU was the only university offering this Programme in Islamabad and only 12-13 universities in the country were offering this degree. Now, almost every university in Islamabad and 72 universities in Pakistan are offering this Programme. As a result, a tough competition in the market and due to lack of diversity and irrelevancy to the changing needs of the market the enrolment has also reduced. Secondly, over the years, local and global dynamics pertaining to environmental issues and social challenges has changed with the focus on issues and challenges related to sustainability and climate change liking with sustainable development goals (SDGs). Hence, offering of this program will provide a new niche for the department, better job opportunities for graduates and competitive edge to the university as all international ranking agencies consider inclusion of sustainability in education. The Programme will provide the human resources to the country for dealing with the challenges of sustainability and changing climate. Pakistan is among the countries, most vulnerable to the impact of climate change and facing challenges of sustainable development, hence, it is a national need.
4. Total Credit Hours for Completing the Program:
135 Credit Hours

B. Mission, Goals, and Learning Outcomes

1. Program Mission:	
Our mission is to develop a generation committed to promote change towards patterns of climate resilient development that is economically feasible, ecologically viable and socially equitable through sustained efforts and implementation.	
2. Program Educational Objectives:	
Sr. No.	**Statement**
(1)	To provide a strong interdisciplinary focus and diversified knowledge of sustainable development issues based on courses in the curriculum.
(2)	To equip with analytical, computational and communication skills, project planning and management for problem solving and critical thinking.
(3)	To train graduates to maintain high professional and ethical standards and stand out as examples for their peers.
(4)	To cultivate outstanding individuals who contribute to their local community and society at large through the application of their professional expertise.
3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.	

1)	Build research with a special focus on interdisciplinary and applied research and the study of contemporary issues;
2)	Expand, strengthen, and diversify the faculty;
3)	Strengthen research and infuse real life experiences in education;
4)	Increase student enrollment to sustain the financial viability;
5)	Support sustainability through green-campus initiatives.

4. Program Learning Outcomes (PLOs)

PLO	Description
(1)	Understand the nexus between ecological, social and economic systems;
(2)	Demonstrate a comprehensive understanding of climate science, including the Earth's climate system, climate variability, and the causes and consequences of climate change;
(3)	Employ knowledge in sustainability principles and practices, including the three pillars of sustainability: environmental, social, and economic aspects;
(4)	Practice skills in problem solving the potential impact of decisions given competing information, perceptions, and goals;
(5)	Adapt and flourish in a rapidly changing world in order to work toward a better tomorrow.

5. Mapping of PLOs to PEOs

		PEO1	PEO2	PEO3	PEO 4
	Understand the nexus between ecological, social and economic systems;	√	√		
	Demonstrate a comprehensive understanding of climate science, including the Earth's climate system, climate variability, and the causes and consequences of climate change;	√	√		
	Employ knowledge in sustainability principles and practices, including the three pillars of sustainability: environmental, social, and economic aspects;	√	√		
	Practice skills in problem solving the potential impact of decisions given competing information, perceptions, and goals;		√	√	
	Adapt and flourish in a rapidly changing world in order to work toward a better tomorrow.			√	√

C. Curriculum

1. Curriculum Structure (table to be filled as per HEC guidelines)

Knowledge Area	Sub Area	Name of Course	Cr. Hrs. (Th.)	Cr. Hrs. (Lab)	Cr. Hrs. (Th.)	Cr. Hrs. (Lab)	Total Cr. Hrs.	No. of Courses	% age
Humanities and Social Sciences	Art & Humanities	Introduction to Art and Humanities	2	0	2	0	2	1	
	Social Sciences	Introduction to Social Sciences	2	0	2	0	8	4	
		Community and Civic Engagement	2	0	2	0			
		Ideology & Constitution of Pakistan	2	0	2	0			
		Islamic Studies/Ethics	2	0	2	0			
	Languages	Functional Arabic	3	0	3	0	12	4	
		Understanding the Quran	3	0	3	0			
		Functional English	3	0	3	0			
		Expository Writing	3	0	3	0			
Management Sciences		Entrepreneurship	2	0	2	0	2	1	
Natural Sciences		Science for Global Challenges	2	1	2	2	9	3	
		Quantitative Reasoning-I	3	0	3	0			
		Quantitative Reasoning-II	3	0	3	0			
		Application of Information and Communication Technology	2	1	2	2	3	1	
Total Credit, Contact Hours and Courses							**36**	**14**	

2. Program Study Plan / Scheme of Studies*

Sr. No	Code	Course Title	Type	Cr. Hrs.		Ct. Hrs.	
				T	P	T	P
1st Semester							
	GEC-102	Functional English	General education	3	0	**3**	**0**
	GEC-111	Science of the Global Challenges	General education	2	1	**2**	**2**
	GEC-113	Quantitative Reasoning-I	General education	3	0	**3**	**0**
	GEC-114	Application of Information and Communication Technologies (ICT)	General education	1	2	**1**	**4**
	ESC-121	Introductory Climate Science	Major	3	0	**3**	**0**
	ESC-111	Introduction to Sustainability	Major	3	0	**3**	**0**
2nd Semester							
	GEC-101	Introduction to Arts and Humanities	General education	2	0	**2**	**0**
	GEC-103/104	Islamic Studies/Ethics	General education	2	0	**2**	**0**
	GEC-112	Introduction to Social Sciences	General education	2	0	**2**	**0**
	FIN-120	Principles of Microeconomics	Interdisciplinary	3	0	**3**	**0**
	ENV-111	Environmental Pollution	Major	2	1	**2**	**2**
	ENV-160	Introduction to Earth Science	Major	2	1	**2**	**2**

	ENV-120	Fundamentals of Ecology	Major	2	1	**2**	**2**
3rd Semester							
	GEC-205	Expository Writing	General education	3	0	**3**	**0**
	GEC-215	Quantitative Reasoning-II	General education	3	0	**3**	**0**
	ECN-417	Environmental Economics	Interdisciplinary	3	0	**3**	**0**
	ENV-221	Biodiversity and its Conservation	Major	2	1	**2**	**2**
	ESC-212	Health and Environment	Major	3	0	**3**	**0**
	ESC-213	Education for Sustainable Development	Major	3	0	**3**	**0**
4th Semester							
	URC-201	Functional Arabic	University Requirements	3	0	**3**	**0**
	GEC-207	Civic and Community Engagement	General education	2	0	**3**	**0**
	GEC-206	Ideology & Constitution of Pakistan	General education	2	0	**2**	**0**
	GEC-216	Entrepreneurship	General education	2	0	**2**	**0**
	LLB-201	Introduction to Legal System of Pakistan	Interdisciplinary	3	0	**3**	**0**
	ENV-213	Population and Environment	Major	3	0	**3**	**0**
	ENV-214	Climate Change	Major	3	0	**3**	**0**
5th Semester							
	URC-302	Understanding of Quran	University Requirements	3	0	**3**	**0**
	ENV-350	Environmental Governance	Major	3	0	**3**	**0**
	ENV-351	Natural Resource Management	Major	3	0	**3**	**0**
	ENV-361	Geographic Information System	Major	1	2	**1**	**2**
	ENV-352	Environmental Management Systems	Major	2	1	**2**	**2**
6th Semester							
	ESC-314	Sustainable Energy	Major	3	0	**3**	**0**
	ESC-331	Climate Change Mitigation	Major	2	1	**2**	**2**
	ESC-315	Water, Energy and Food Security	Major	3	0	**3**	**0**
	ENV-362	Remote Sensing of the Environment	Major	1	2	**1**	**4**
	ESC-332	Sustainability Assessment	Major	2	1	**2**	**2**
	INT-399	**Field Experience/Internship**	Major	3		**3**	
7th Semester							
	ESC-433	Climate Change Vulnerability Assessment	Major	2	1	**2**	**2**
	ENV-416	Research Methodology	Major	3	0	**3**	**0**
	ESC-423	Sustainable Cities and Communities	Major	3	0	**3**	**0**
	ESC -434	Climate Change Adaptation	Major	3	0	**3**	**0**
	TMPM221	Introduction to Project Management	Interdisciplinary	3	0	**3**	**0**
8th Semester							
	ESC-424	Sustainable Consumption and Production	Major	3	0	**3**	**0**
		Elective-1	Major	3	0	3	0
		Elective-II	Major	3	0	3	0
		Elective-III	Major	3	0	3	0
	ESC-499	**Capstone Project**	Major	3	0	3	0

3. List of Electives

Name of Course	Credit Hours (Theory)	Credit Hours (Lab)	Contact Hours (Theory)	Contact Hours (Lab)
Occupational Health and Safety	2	1	2	2
Life Cycle Assessment	2	1	2	2
Energy Management System	2	1	2	2
Forestry and Environment	3	0	3	0
Eco-tourism	3	0	3	0
Carbon Sequestration	3	0	3	0
Geospatial Application in Hydrology	1	2	1	4
Applied Remote Sensing & Image Processing	1	2	1	4

4. Teaching and learning strategies to achieve program learning outcomes

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

S. No.	Teaching/Learning Strategy	Learning Activities
1	Teaching	Face to Face Lecture
2	Problem Solving activities	Hands on Exercises/Mock Play/Class activities
3	Practical/ Field Visits	Experiments/ Industrial & Field visits
4	Seminars /Exhibition/Campaigns/Poster Competitions	Co-curricular Activities

5. Assessment Methods for program learning outcomes.

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

S. No.	Type	Measurement Tool	Domains	Threshold
(1)	Continuous Assessment	Assignments/Projects	Psychomotor, Affective	5-10%
		Quizzes	Cognitive	5-10%
(2)	Mid Term	Written Exam	Cognitive, Psychomotor	20%
(3)	Final Term	Written Exam	Psychomotor, Affective	60%

D. Student Admission and Support:

1. Student Admission Requirements

Twelve years of education in any discipline securing at least 50% marks in FA/FSc/A-Level are eligible to apply

2. Guidance and Orientation Programs for New Students

S. No.	Type
(1)	University Orientation program by the Student Advisor office, IIUI
(2)	Library orientation program by Central Library, IIUI
(3)	Departmental orientation program in first class by the department

3. Student Counseling Services
(academic, career, psychological and social)

Counseling hours of teacher and academic advisors are displayed on offices in the start of each semester. Student may consult teachers during the counselling hours

4. Special Support
(low achievers, disabled, gifted and talented)

Each batch is assigned an academic advisor to counsel the students for any problem they are facing related to their studies.

E. Learning Resources, Facilities, and Equipment

1. Learning Resources.
Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

S. No.	Type	Details
(1)	**Course Learning Resources**	Reference books and reading material is provided in all courses
(2)	**Online Tutorials**	Videos/documentaries/online books can be shared in Google classroom.
(3)	**Other electronic resources**	Students have access to on-campus library as well as HEC digital library.

2. Facilities and Equipment
(Library, laboratories, medical facilities, classrooms, etc.).

S. No.	Facility	Quantity
(1)	Classroom	4
(2)	Computer lab/GIS & RS Lab	2
(3)	Environmental Quality Lab	2
(4)	Ecology lab	2

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

S. No.	Arrangement	Details
	Medical Facilities	Campus administration tries to ensure health and safety of the students during their stay at campus. For this purpose medical centers are established at male and female campuses separately.
	Fire Safety	Fire extinguishing equipment is installed and maintained regularly.
	Clean Drinking Water	Water filters are installed to provide safe drinking water.

F. Program Management and Regulations

1. Program Management

1.1 Program Structure

(Including councils, boards, committees, etc.)

S. No.	Boards/Committees
(1)	Departmental Board
(2)	Departmental Committee
(3)	Board of Studies
(4)	Board of Faculty
(5)	Academic Council

1.2 Stakeholders Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (Students, professional bodies, scientific societies, alumni, employers, etc.)

S. No.	Stakeholder	Details
	Faculty Members of DES, IIUI	Departmental Boards and meetings
	Members of BoS, BOF and academic council.	BoS and BoF conducted and concerns are incorporated
	Alumni of Department of Environmental Science	Alumni were consulted through online platform and suggestions are incorporated

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

S. No.	Type	Link
	All academic rules and regulations are available on university website and updated time to time.	

G. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

2. Program Quality Monitoring Procedures

The developed schemes of studies are dully reviewed by the Quality Assurance Department, IIUI and monitoring by HoD, program coordinator, Dean office, Academics and exam section.

3. Arrangements to Monitor Quality of Courses Taught by other Departments.

Students are required to provide their feedback on courses and teachers at the end of each semester.

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

The scheme of studies is same and discussion sessions are held for improvement in Program and uniformity of standards.

* Programs under accreditation bodies/councils should use the relevant templates

5. Program Evaluation Matrix *

Evaluation Areas/Aspects	Evaluation Sources/ References	Evaluation Methods	Evaluation Time
Self-Evaluation Report of the Program	Teachers, scholars and Alumni Course plans Teacher and Course feedback forms Employer	questionnaire Document evaluation QAD Administered feedback Graduate Survey Form	At the end of each semester Start and end of semester At the end of each semester Annual
Effectiveness of Teaching			
Effectiveness of Teaching			
Graduate Attributes			

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