Environment and Sustainable Agricultural Development Program

Introduction:

The Sustainable Agriculture and Environment Program focuses on teaching the sciences related to natural ecosystems and their surrounding conditions. The program aims to equip students with the fundamental concepts related to environmental conservation and the protection of its components, including soil, water, air, and plants, from degradation and pollution. This ensures the preservation of their productive capacity and enhances the efficiency of their utilization for optimal administrative and economic exploitation, thereby contributing to the development and advancement of the environmental and agricultural sector and its productive capabilities.

Courses have been carefully selected to provide comprehensive coverage of the fundamental sciences related to environmental economics, policies, water, and natural resources. Applied courses complement the material covered in the core courses, ensuring a well-rounded education. The program places a strong emphasis on areas closely related to the Yemeni environment and agricultural natural resources. Course design carefully considers providing students with the essential knowledge to gain a thorough understanding of the fundamental areas of specialization. This comprehensive education equips students with the versatility and flexibility necessary to excel in future endeavors in the fields of environment, water, and sustainable agricultural development.

Program Mission:

Preparing graduates with exceptional scientific qualifications and professional competence to meet the requirements of environmental development, empowering them to contribute to local and regional competitiveness in serving the community effectively in the fields of environmental conservation, natural resource management, sustainable production, and resource efficiency.

Program Aims:

1. Attracting top-tier teaching staff to enhance the quality of teaching, research, and community engagement.
2. Emphasizing the integrated management of natural resources and ecosystems.
3. Equipping students with a comprehensive understanding of the challenges and opportunities facing the pillars of sustainable development in Yemen, particularly in the environmental and agricultural sectors.
4. Preparing agricultural engineers with the skills and knowledge to engage effectively in professional life and develop innovative development projects.
5. Equipping students with the technical skills and specialized expertise to enable them to compete effectively in the local and regional labor market, including the private sector and non-governmental organizations.

6. Conducting specialized scientific research, promoting and developing applied research in the fields of environment and natural resources, providing specialized scientific consultations, and establishing effective channels of cooperation and communication with government agencies and the private sector.

Graduate Attributes:

Upon successful completion of their studies, the graduates of the Environment and Sustainable Agricultural Development Program will be able to:

1. Show understanding and awareness of the agricultural engineer's function in society.
2. Managing the sustainable development of infrastructures and using agricultural resources.
3. Using appropriate technologies; Addressing environmental, technical, and economic concerns in agriculture.
4. Demonstrate his professional abilities in developing his performance and qualify for continual self-learning.
5. Protecting natural resources and biodiversity
6. Demonstrate awareness of legal, ethical, and social issues related to the agricultural environment
7. Proposing agricultural strategies based on soil and water quality and sustainability standards.
8. Using natural resources very effectively.

Program Intended Learning Outcomes (PILOs):

A. Knowledge and Understanding

A1. Demonstrate a comprehensive understanding of the fundamentals and principles of basic and applied sciences relevant to the agricultural environment.
A2. Define commonly used agricultural environmental terms and their synonyms in rural Yemen.
A3. Identify risk factors in agricultural operations, their environmental impact, and effective mitigation strategies.
A4. Explain methods for handling, processing, and recycling agricultural waste.
A5. Explain the fundamentals of agricultural planning, implementation, and economic principles.
A6. Provide a comprehensive understanding of agricultural legislation and professional ethics related to the environment and human health.

B. Cognitive/ Intellectual Skills:

B1. Assess the status of natural resources, employing scientific and technical methods to address their challenges and enhance their utilization.
B2. Propose experimental plans and draw logical conclusions from the results.
B3. Explain the systematic scientific approach to making informed decisions to solve various environmental problems.
B4. Select the most effective alternatives to optimize the sustainable development of agricultural establishments.
B5. Successfully develop comprehensive plans for the utilization and conservation of various natural resources in accordance with international quality and safety standards.
B6. Analyze the evaluation of agricultural establishments and develop effective plans to ensure their long-term sustainability.

C. Practical and Professional Skills:

C1. Conduct monitoring of natural phenomena changes such as soil degradation, desertification, and water pollution that impact the survival of beneficial marine organisms.
C2. Develop plans and programs for the advancement of work in the environment, natural resources, and marine life sectors.
C3. Apply fertilizers in appropriate quantities and of high quality.
C4. Measure the quantity of pesticides and fertilizers and implement an appropriate application system.
C5. Design landscaping plans for gardens, forests, and green spaces in rural or urban areas.

D. General Skills:

D1. Demonstrate communication skills and the ability to work effectively within specialized teams with relevant stakeholders.
D2. Effectively utilize appropriate audiovisual aids to present environmental data and information.
D3. Work effectively within multicultural teams and demonstrate an understanding of group dynamics.
D4. Propose methods for environmental conservation and natural resource management among local communities.

Undergraduate Program Courses for Departments of the Faculty of Agriculture, Foods, and Environment - First and Second Levels

First Level Courses					
First Semester			Second Semester		
Course code	Course Title	Credit Hours	Course code	Course Title	Credit Hours
UR001	Arabic Language (1)	2	FR001	Physics & Meteorology	3
UR006	Islamic Culture	3	FR006	Principles of Statistics	2
FR111	General Chemistry	3	FR111	Organic Chemistry	3
FR112	General Botany	3	FR112	Principles of Agricultural Economics	2
FR113	Mathematics	2	FR113	General Zoology	3
FR114	Agriculture in Yemeni Environment	1	FR114	Principles of Ecology	2
UR007	National culture	2	UR002	Arabic Language (2)	2
FR115	Geology	1	UR008	Conflict with the Israeli enemy	2
	Total	17		Total	19

Undergraduate Program Courses for Departments of the Faculty of Agriculture, Foods, and Environment - First and Second Levels

Second Level Courses					
First Semester			Second Semester		
Course code	Course Title	Credit Hours	Course code	Course Title	Credit Hours
FR211	Soil Fundamentals	2	FR221	Principles of Food Science	2
FR112	General Microbiology	3	FR222	Principles of Crops Protection	2
FR113	Biochemistry	3	UR004	English Language (2)	2
FR114	Principles of Animal Production	2	FR127	Principles of Genetics	2
UR003	English Language (1)	2	FR223	Principles of Horticulture	2
FR114	Principles of Crops Production	2	FR224	Plant Physiology	2
FR215	Principles of Agricultural Engineering	2	FR225	Principles of Human Nutrition	2
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	Total	16		Total	17

Undergraduate Courses for the Environment and Sustainable Agricultural Development Program (ENV) - Department of Soil, Water, and Environment

Third Level Courses

First Semester				Second Semester			
Responsible department	**Code**	**Course Title**	**Credit Hours**	**Responsible department**	**Code**	**Course Title**	**Credit Hours**
Crop Science	ENV311	Natural Pastures Development	3	Animal Resources	ENV321	Marine Ecology and Fish Resources	**3**
Soil	ENV312	Agricultural Land Resources	3	Plant Protection	PLP322	Pesticide Residues Analysis and Environmental Pollution	**3**
Hort. + Soil	ENV313	Afforestation and combating desertification	3	Soil	SOL326	Integrated Water Resources Management	**3**
Plant Protection + Hort.+ Crop Science	ENV314	Biodiversity	2	Soil	SOL321	Soil and water Pollution	**3**
Animal Resources+ Agri. Economic	ENV315	Statistic and Data Analysis	3	Agri, Eng.	ETA322	Renewable Energy Engineering	**3**
Soil	ENV316	Remote Sensing Techniques	3	Plant Protection	ENV414	Plant Ecology	**2**
Agri. Economic	FR315	Agricultural Extension and Rural Community	2	Soil	ENV325	Summer Training	**1**
		Total	19			**Total**	18

Fourth Level Courses

First Semester				Second Semester			
Responsible department	**Code**	**Course Title**	**Credit Hours**	**Responsible department**	**Code**	**Course Title**	**Credit Hours**
Hort.+ Crop Science	**ENV421**	**Sustainable Agriculture**	2	Agri, Eng.	**ENV411**	**Environmental Engineering**	3
Hort.+ Soil+ plant Protection	**ENV 422**	**Organic Farming and Biocontrol**	3	Crop Science	**ENV412**	**Agriculture in Arid Environment**	3
Soil	**SOL 423**	**Waste recycling**	2	Soil	**ENV413**	**Environmental Impact Assessment**	3
Food Science	**HRT411**	**Food Contamination**	2	Horticulture.	**ENV324**	**Forests and Nature Reserves**	3
Crop Science+ Agri. Economic	**ENV424**	**Research Methodologies**	2	Agri. Economic	**ENV415**	**Environmental Legislation**	2
Soil	**ENV425**	**Geographic Information Systems**	3	plant Protection +Food Science	**ENV416**	**Environmental Health and safety**	2
Agri. Economic	**ENV426**	**Economics of Environmental and Natural Resources**	2	Soil	**ENV417**	**Graduation Project**	3
		Total	16			**Total**	19