



Academic Program Description Form

University Name: ...Mosul University

Faculty/Institute:College of Agriculture and Forestry

Scientific Department:Soil sciences and water Resources

Academic or Professional Program Name:

Final Certificate Name:

Academic System:

Description Preparation Date: 26/3/2024

File Completion Date: 1/4/2024

Signature:

Head of Department Name:

A. Farouq Al-Mutather

Date: 1/4/2024

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Signature A.M.

Scientific Associate Name:

Ali Farouq Al-Mutather

Date:

1/4/2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 2/4/2024

Assist. Lect. Oday Abdulhadi Adday

Signature:



Approval of the Dean

1. Program Vision

Excellence and sophistication in academic education, leadership in community service and quality in scientific research in the fields of soil sciences and water resources in pursuit of internationalism.

2. Program Mission

Contributing to achieve sustainable development by preparing a specialized agricultural engineer qualified to work in the fields of soil science and water resources committed to professional ethics highly competent in terms of science, applied skills and the capability of meeting the needs of the local, regional and global labor markets and serving the community at a competitive level through developing scientific research skills and continuous self-learning.

3. Program Objectives

- 1- Qualifying specialized scientific staff, trained and with scientific competencies in the field of soil sciences and water resources, who are able to confront the challenges of the profession and competition with their colleagues in serving the community and meeting the needs of the labor market.
- 2- Developing a modern, stimulating educational environment with the latest technologies and advanced equipment that enables the student to complete, and create in them the desire to continue learning, self-development skills and the ability to develop performance and work within a team in the field of sciences and water resources.
- 3- Qualifying staff that are familiar with agricultural legislation, legal and social issues and committed to work ethics and relevant quality management relevance to agricultural fields, especially soil science and water resources.

- 4- Managing and employing resources and addressing problems in agricultural facilities and projects with high efficiency and good performance in the field of soil science and water resources within the frame work of preserving natural resources, biodiversity and sustainable development.
- 5- Build good skills in language, computer use, and develop their abilities to use the scientific and practical method research in the field of soil science and water resources and contribute to solving problems related to agricultural sector.
- 6- Analyzing the ways in which humans, plants and soil interact with our environment in order to enhance the conservation of natural resources and protect our environment.
- 7- It uses scientific and appropriate technology to inventory and classify lands, determining their pattern, and evaluating their characteristics soil and water and determined appropriate agricultural use patterns under different environmental condition for preservation of soil from deterioration and water from pollution for a clean sustainable environment.
- 8- They can study wetland systems and ways to restore them such as, lakes, rivers, ground waters and their interconnectedness and learning about public policies related to water and its quality.
- 9- Acquiring knowledge and skills related to the classification and conservation of the land and solving related problems with the aim of increasing productivity
- 10-Being able to use modern methods and the analytical approach in planning and implementing fertilization programs and benefits from the land and water units in a sustainable concept, controlling waste and reducing pollution to obtain environmentally safe agricultural product.
- 11-Able to evaluate and manage regulated water resources and their suitability for irrigation in order to achieve agricultural economic development conservation biodiversity and resource sustainability
- 12-Can apply the principles of statistical and logical analysis in monitoring and analyzing problems related to water and soil resources
And their disadvantage to agricultural lands and developing appropriate solutions for them.
- 13-Reclamis and farming desert or lands are affected by salinity, and
Contribute effectively to increase capacity of productivity under different environmental conditions that keeps high soil fertility and prevents it from deteriorating.
- 14-It uses modern scientific methods for organic and agricultural biotechnology

to achieve safe agricultural products and propose various programs for chemical, organic and biological fertilization within the conditions of preserving soil, and water.

- 15-Understanding the effects of human activity on the environment and using the techniques for rehabilitating damaged soil and water system and improving the treatment methods in land and water that are polluted with heavy metals and pesticides.
- 16-He can manage nutrients in agricultural production projects and is familiar with fertilizers industry.
- 17- Capable of exploring groundwater, managing it, maximizing its storage and methods of treating polluted ground water.
- 18- Solving and dealing with the problems of drought, erosion, floods, water shortage and land degradation that is negatively impact on food production.
- 19- Can manage and conserve local and international lands and waters in a more sustainable manner within the framework of ecosystem management and adaptation to climate change.
- 20- He studies hydrology and meteorology and their use in solving environmental problems
- 21-It has the ability to quickly and accurately analysis soil, water, plants and fertilizers.
- 22- Training on spatial information systems and digital mapping of natural resources.

4. Program accreditation

Not available

5. Other external influences

- √ Family problems that face the students negatively affects the students' performance in the academic program.
- √ Extracurricular activity helps students to achieve greater achievements in applying the academic program.
- √ The economic situation of the students and their connection to work in order to collect money has negatively affected their academic performance.

√ The student's learning efficiency from his secondary school studies is one of the most important indicators of excellent in the performance of the academic program.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews [#]
Institution Requirements	12			
College Requirements	35			
Department Requirements	24			
Summer Training	1			
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours		
			theore tical	practi cal	Unit
First stage /Autumn semester	ORCH105	Organic Chemistry	2	3	3.5
	PHYS110	Physics	2	3	3.5
	PRFC112	Principles of Field Crops	2	3	3.5
	PRAP114	Principles of Animal Production	2	3	3.5
	MATH104	Mathmatics ¹	2	-	2
	DEHR100	Democracy and Human Rights	2	-	2
	ENGD118	Engineering Drawing	-	3	1.5
	ENGL101	English Language 1	2	-	2
First stage /Spring semester	ANCH107	Analytical Chemistry	2	3	3.5
	GEOL132	Geology	2	3	3.5
	FRPR208	Fruit Production	1	2	2.5
	PAEC115	Principles of Agricultural Economy	2	-	2
	MATH133	Mathmatics 2	2	-	2
	SURV120	Surveying	1	2	2.5
	COMA103	Computer Application 1	-	2	1.5
	BICH204	Biochemistry	2	2	3.5
	PRSS113	Principles of Soil Science	2	2	3.5
	STAT109	Statistical	2	3	3.5

Second stage /Autumn semester	PRMI205	Principles of Microbiology	2	3	3.5
	SWEN234	Soil and weather environment	2	3	2.5
	VEPR121	Vegetable Production	1	3	2.5
	COMA203	Computer Application 2	--	3	1.5
	ARAL10	Arabic Language 1	2		2
	CBAP200	Crimes of the defunct Baath Party	٢	---	٢
Second stage /spring semester	PSWA235	Plant Soil and Water Analysis	2	3	3.5
	PRPP117	Principles of Plant Protection	2	3	3.5
	AGME207	Agricultural machines and Equipments	2	3	2.5
	PAEX206	Principles of agricultural extension	2	---	2
	PLPH210	Plant Physiology	2	3	3.5
	ALLA236	Alteration and Leveling of land	2	3	3.5
	ENGL201	English Language 2	2		2
Third stage /Autumn semester	SOPH346	Soil Physics	2	3	3.5
	ORMS347	Organic Matter in Soil	2	3	3.5
	SOFE348	Soil Fertility	2	3	3.5
	IRIG349	Irrigation	2	3	3.5
	SOCI350	Soil Chemistry	2	3	3.5
	SOPW351	Soil and water Pollution	2	3	3.5
	DAAB302	Design and analysis of agricultural experiments	2	3	3.5
	ENGL300	English Language 3	2	--	2
Third stage /spring semester	RESE352	Remote Sensing	2	3	3.5
	SSAL353	Soil salinity	2	3	3.5
	SMOR354	Soil Morphology	2	3	3.5
	DRAI355	Drainage	2	3	3.5
	SOMI356	Soil Mineralogy	2	3	3.5
	ECER357	Economics and natural Resources	3	--	3
	COMA301	Computer Application 3	---	3	1.5
Fourth stage /Autumn semester	SUSC448	Soil Survey and Classification	2	3	3.5
	SOWC449	Soil and Water Conservation	2	3	3.5
	SOMI450	Soil Microbiology	2	3	3.5
	SWPR451	Soil-water - Plant Relation	2	3	3.5
	HYWR452	Hydrology and water Resources	2	3	3.5
	IRST453	Irrigation systems Technology	2	3	3.5
	REPR402	Research Project 1	--	3	1.5
	COMA401	Computer Application 4	----	3	1.5
	SEM404	Seminar			
Fourth stage /spring semester	SOMA454	Soil Management	2	3	3.5
	DESE455	Desertification	2	--	2
	PLNU214	plant nutrition	2	3	3.5
	FETE456	Fertilizers Technology	2	3	3.5
	LARE457	Lands Reclamation	2	3	3.5
	REPR403	Research Project 2	----	3	1.5
	ENGL400	English Language 4	2	----	2
	SEM404	Seminar	1		1

8. Expected learning outcomes of the program

Knowledge

A1:	The student should be able to demonstrate knowledge and the understanding of the Arabic language, teach it, develop it, and disseminates its use as a scientific language in various scientific fields.
A2:	The student should be able to explain the foundations of the universities culture and its core values of accountability, transparency, and justice equality, cooperation and citizenship.
A3:	The student should be able to explain the principles of human rights and democracy and their role in achieving effective partnership with society.
A4:	The student should be able to demonstrate knowledge and understanding of the English language, and it teaching, development and use for scientific and educational purposes in various scientific fields.
A5:	The student should be able to explain biodiversity, its importance, and how to preserve natural resources in the environment.
A6:	The student should be able to become familiar with the basic and applied sciences, modern technologies related to agricultural and food and the principle of planning and implementing agricultural operation.
A7:	The student should be able to explain the basics of applied sciences related to agricultural sciences, food, natural resources environment, and biological systems
A9:	The students should be able to explain the basics of agricultural engineering and the principles of planning and implementing the agricultural proses.
A10:	The student should be able to understand the division of pathogens (fungi, bacteria, viruses, and nematodes) and agricultural pests (insects and animals) and the damage resulting from them in affecting plants and their productivity during the stages of production, transportation, and storage
A13:	The student should be able to recognize different scientific methods. To develop resources, facilities and sectors.
A14:	The student will be able to explain biodiversity and its importance in preserving natural matter, indicating the importance of the safety and quality of agricultural and food products and quality and safety programs related to that in a way that meets food laws and legislation.
A15:	The student will be able to explain the principles of planning and implementing agricultural operations and knowing what the market needs through the analysis of supply and demand prices.
A16:	The student should be able to explain the stages and basic elements of planning and implementing agricultural operations and activates in agricultural communities.
A17:	The students should be able to explain the principles and theories of basic sciences related to agriculture and rural development.
A20:	The students should be able to explain the principles of basic and applied sciences and modern techniques related to agricultural sciences land, water, and environment.

A21:	The student will be able to describe practical developments in the fields of sciences and related sciences.
A22:	The student will be able to explain environmental issues and problems related to the land, water, and environment sectors.
A23:	The student should be able to classify the types of agricultural equipment and devices, their areas of use, mechanical systems and water pumps used in agricultural production.
A24:	The student should be able to explain the principles of planning and implementing agricultural operations and the appropriate scientific methods in dealing with soil and water according to quality and food safety standards.
A25:	The student should be able to explain the basic of designing irrigation systems and post-harvest treatments according to the concepts and elements of management quality and safety in the field of agriculture and food such as drying, pasteurization, storage and manufacturing.
A26:	The student should be able to classify and deal with chemical groups of pesticides, taking into account local and international legislation and controls that are informed by safety standards for their use and their impact on the quality and safety of agricultural and food products.
A32:	The student should be able to explain the role of different living organisms in food production, how to control them, the impact of environmental factors and the health aspects of food facilities.
A38:	The student should be able to explain the stages and basic elements of planning and implementing agricultural operations, activities in agricultural community.
A40:	The student should be able to explain the principles and theories of basic sciences related to agricultural, food and rural development.
A41:	The student should be able to explain the structure of living organisms in term of cells, plants tissues, organs and their functions explaining the divisional and structural characteristics of field crops.
A42:	The students will be able to identify the methods of crop protection and integrated management of pests that affect field crops and pastures.
A43:	The students will be able to explain soil and water management methods and appropriate agriculture practices for field crops and pastures which preserve them and prevent their deterioration.
A44:	The students will be able to explain the methods and objectives on breeding field crops, managing and preserving genetic assets and explaining biotechnologies uses improve crops.
A45:	The students will be able to determine the environmental requirements and agricultural processes necessary for crop growth and production and their relation to that form the physiology of growth to the management of crops for their use as raw materials into industry sector.

A46:	The student should be able to become familiar with the basic and applied sciences related to agriculture and food to become familiar with field crop production systems and pasture management, especially under drought conditions and rain-fed agriculture.
A49:	The student should be able to manage the principles and implementing agricultural operations, in a way that serves livestock in all aspects productivity and economic in various agricultural communities and their relationship with sustainable development.
A53:	The student is able to learn the types of horticultural crops and techniques of production, improvement, handling and storing, and marketing of various horticultural crops.
A54:	The student is able to explain scientific methods using modern technologies in quantitative improvement for horticultural products and their various techniques to explore all available plant resources.

Skills

B1:	The student should be able to practice various thinking skills in a systematic and positive manner in diagnosing the problems and issues he faces while working and proposing appropriate solutions to them.
B2:	The student should be able to express his ideas clearly and objectively and interact positively with his colleagues, superiors and subordinates at work
B3:	The student will be able to discuss and evaluate studies and research related to societal issues in a systematic and objective manner.
B4:	The student will be able to propose commercial plans for plant, animal and food crops in accordance with market systems by assessing the economic situation of the market and knowing its needs.
B5:	The student should be able to propose solutions to problems related to systems, processes and machines that interact with humans, plants, animals, microorganisms and biological materials.
B6:	The student should be able to distinguish the structure of living organisms in terms of cells, tissues, organs their functions and their interactions.
B9:	The student will be able to suggest methods for analyzing data and information and interpreting agricultural phenomena using programs to solve agricultural problems.
B10:	The student will be able to predict the status of plant pests and diseases, specifying methods for monitoring and investigation in the field and the rate and intensity of infections.
B11:	The student will be able to extract the factors that explain the phenomena and relate to the agricultural production.
B12:	The student will be able to carry out a market feasibility study for agricultural goods through financing, credit and, marketing.

B13:	The student should be able to analyze with a scientific methodology data and information related to agricultural problems to find the most appropriate solutions.
B14:	The student should be able to plan and manage agricultural projects free from diseases and pests in accordance with quality safety.
B15:	The student should be able to manage agricultural projects in accordance with quality and safety standards and free of diseases and pests.
B16:	The student should be able to choose logical solutions to problems in engineering systems and set concise and clear objectives, he proposes practical and reasonable solutions and analyzes alterative solutions.
B18:	The student should be able to analyze data and information related to agricultural problems in the land, water and environmental sectors to find out the appropriate solutions for them.
B19:	The student should able to design appropriate production plants and irrigation projects to achieve food and water security and serve the goals of sustainable development.
B20:	The student should able to analyze the factors that have a mutual influence between water scarcity, desertification and climate change.
B21:	The student will be able to design programs for the responsible and multiple use of primary and secondary agricultural products, organic waste, natural resources, soil, water, air and energy.
B22:	The student will be able to suggest appropriate solutions to specialized problems in the field of soil, water and environmental sciences.
B23:	The student will be able to demonstrate easy guidance and education or changing behavior and raising awareness for various individual and groups community.
B24:	The student will be able to analyze data and information and use them in decision –making for continued quality improvement and making the appropriate intervention.
B30:	The student will be able to classify the social and economic factors that achieve the technical and economic efficiency of the agricultural facility.
B31:	The student will be able to propose plans for planting field crops and developing pastures according to the environmental conditions and the quality of soil and water.
B32:	The student will be able to design scientific experiments and collect and analyze the data under field and laboratory conditions.
B33:	The student will be able to propose a research plan in the field crops with high efficiency and excelling writing reports, reaching the ability to obtain logical conclusion.
B34:	The student will be able to analyze data and information according to the scientific methods related to agricultural and nutrition problems, animals and fish production to find the most appropriate solution.

B46:	The student will be able to analyze the problems of animal and fish production and find out the solution for each individual problem
B38:	The student should be able to compare the size of problems and risks resulting from infections with pathogens and pests during all stages of production and storage, specifying the mechanisms for managing these problems and assessing the potential risk elements.
B43:	The student should be able to employ the systematic scientific method in making appropriate decisions to solve various horticultural problems.
B47:	The student will be able to solve problems using arithmetic, algebraic, geometric, statistical methods.
B48:	The student will be able to determine and measure land areas and conduct spatial analysis.
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Ethics	
E1:	The student should be able to suggest ways to preserve the environment and natural resources in local community.
E2:	The student should be able to contribute to enhancing, understanding and beware of the meaning of professionalism at work and assuming legal responsibility ethical and social
E3:	The student should be able to deal efficiency in the field of work to transfer knowledge and skills to farmers and general public.
E4:	The student should be able to contribute to spreading awareness among the farmer's community members to reduce the agricultural pollution.
E5:	The student must be able to bear responsibility for completing work efficiently and be keen on professional ethics.
E6:	The student should be able to be keen on analysis and critical thinking within eastern and Arabic cultural traditions.
E7:	The student should be able to evaluate ethical issues using critical thinking skills.

9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in the implementation of the program in general.

- interactive lecture
- Brainstorming
- Dialogue and discussion
- Field training
- Practical exercises
- Field project
- self –education

10. Evaluation methods

Implemented at all stages of the program in general.

- Short test (quizzes)
- Semester test 1
- semester test 2
- Homework
- A report
- Final test

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor		nothing			nothing	
Assistant professor		6			6	
Lecturer		7			7	
Assistant Lecturer		9			9	

Professional Development

Mentoring new faculty members

- Developing skills to enhance self-confidence, a positive orientation towards a culture of quality and requirements enhancing a sense of responsibility, believing in the spirit of teamwork and its role in achieving and developing a sense of function and moral consciences.
- Evaluation courses and plans in coordination with academic departments to ensure that they meet market requirement of the jobs.
- possessing the skills of guiding students
- the ability to produce educational materials according to quality specification, including academic curricula, lecture media and education equipment.

Professional development of faculty members

- developing educational skills through diversifying teaching methods, dealing positively with and practicing feedback. Using educational techniques and focusing on developing intellectual and competitive skills among students.
- developing skills to address problems and phenomena affecting the course of the educational process in the college.
- developing the ability to evaluate courses and plans in coordination with academic departments to ensure their achievement to labor, market requirements.
- developing the ability to measure the satisfaction of beneficiaries (faculty members, students, and society) with the education process and researcher at the college
- evaluating tests in order to evaluating students and papering reports to following up on their results.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

- Students are accepted into the college program central admissions department at the Ministry of High education and scientific research, and according to the application channels approved by the ministry.
- Students are distributed to the department program according to the grade and the students desire.
- The students accept in the department must fit the physical appearance and health based on the medical examination reports
- The students grade accept is based on the minimum grade approved by the ministry

13. The most important sources of information about the program

State briefly the sources of information about the program.

The most important source of information about the program

- The primary source of program information is the committee of experts of departments of soil and water resources which are approve by scientific committee of the deans of college of agriculture.
- The study prepared by the scientific committee, department council and approved by the college council which includes a proposal for modernizing academic agricultural program with simulating the three top equivalent departments around the world.
- local and regional market needs

14. Program Development Plan

A plan was put to develop the program after studying the review notes by the lecturer's members and quality assurance committee, the scientific committee in the department council and the student's feedback through analyzing the results of the student's questionnaires for the courses based on evaluating of exams results for all academic programs, as follows:

- Inadequate practical training
- The lack of a clear mechanism to help weak students and encouraging outstanding students
- The students don't understand the university regulations governing the educational processing
- the succession rate of some courses don't agree with the normal distribution chart.

Program	Course No.	Course Title	Learning Outcomes																																		
			LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12	LO13	LO14	LO15	LO16	LO17	LO18	LO19	LO20	LO21	LO22	LO23	LO24	LO25	LO26	LO27	LO28	LO29	LO30	LO31	LO32			
1st year course	ENGL100	English I																																			
	ENGL101	English II																																			
	ENGL102	English III																																			
	ENGL103	English IV																																			
	ENGL104	English V																																			
	2nd year course	ENGL200	English VI																																		
		ENGL201	English VII																																		
		ENGL202	English VIII																																		
		ENGL203	English IX																																		
		ENGL204	English X																																		
		3rd year course	ENGL300	English XI																																	
			ENGL301	English XII																																	
			ENGL302	English XIII																																	
			ENGL303	English XIV																																	
			ENGL304	English XV																																	

Please tick the boxes corresponding to the individual program learning outcomes under evaluation.