University of Mosul

جامعة الموصل

First Cycle – Bachelor's degree (B.Sc.) – Soil Sciences and Water Resources

بكالوريوس علوم التربة والموارد المائية

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1. Mission & Vision Statement

Vision Statement

Soil Sciences and Water Resources Department preparing and qualifying trained technical cadres capable of supplying the private sector and relevant government institutions (faculties of agriculture—the Ministry of Agriculture and its affiliated departments—relevant research institutions and centers) with scientific competencies and distinguished technical expertise in soil and water sciences that improve and increase the local product of the food basket to achieve economic returns and events. A qualitative leap in performance that is compatible with the population increase, labor market requirements, and keeping pace with global development and progress Excellence and sophistication in academic education, leadership in community service, and quality in scientific research in the fields of Soil and Water Sciences in pursuit of international

Mission Statement

The Soil Sciences and Water Resources academic staff pursues a multifaceted charge at the College of Agriculture and University of Mosul. The program seeks to encourage young people who graduate from preparatory schools and agricultural institutes to engage in agricultural academic training for Iraqi agricultural colleges to ensure that they obtain future job opportunities that serve the labor market and develop the foundations of sustainable development in Iraq to enhance food security. committed to professional ethics, highly competent in terms of science and applied skills, and capable of meeting the needs of the local, regional, and global labor market and serving the community at a competitive level through developing scientific research and self-learning skills. Continuous.

2. Program Specification

Programme code:	BSc-BIO	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

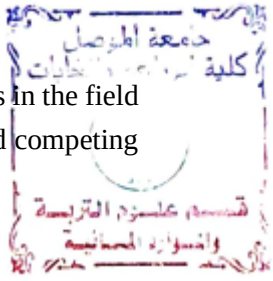
Write something like:

The Department of Soil Sciences and Water Resources contributes to conducting various studies on the country's soils, the quality of surface and groundwater, and estimating their suitability for irrigation, especially in the dirt of the northern regions, to increase soil productivity, maintenance, and improvement through preparing specialized cadres in soil sciences for the bachelor's, master's, and doctoral level and conducting applied research in soil fertility, fertilization, irrigation, standards, surveys, and soil classification.

The first level introduces students to the basics of basic agricultural sciences and is suitable for progression to advanced stages in soil and water sciences. Core program-specific topics are covered at Level 2 to prepare for specialist modules in research-led topics at Levels 3 and 4. Therefore it is done Training the graduate of the soil and water Department to acquire communication skills, the relationship of the environment to soil and water sciences, and modern methods in agricultural marketing, so that the student's learning outcomes are paved for g In levels 2, 3 and 4, students have the freedom to choose more than half of their study units provided that a set of units is chosen that reflects the importance of specialized lessons that ensure that the student benefits from the targeted learning outcomes of the program and that are in line with the labor market and facilitate integration into the labor market for the graduate from During the breadth of knowledge expected of an soil and water sciences graduate. The research ethos is developed and fostered from the start via practical's, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students must pass in order to progress into Level 2, and optional field courses in Levels 2, 3 and 4. At Level 4 all students carry out an independent research project, which may be a xx credit library or data analysis project. Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context. International years and Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

3. Program Objectives

1. Qualifying specialized scientific cadres who are trained and have scientific competencies in the field of soil sciences and water resources, capable of facing the challenges of the profession and competing with their peers in serving the community and meeting the needs of the labor market.



2. Developing a modern, stimulating educational environment equipped with the latest technologies and advanced equipment that enables the student to compete, innovate and excel and creates in him the desire to continue continuous learning and develop himself, skills and the ability to develop performance and work within a team and make decisions in the field of soil sciences and water resources.

3. Qualifying cadres familiar with agricultural legislation and legal and social issues and commitment to work ethics and quality management related to agricultural fields, especially those related to soil sciences and water resources.

4. Managing and employing resources and addressing problems in agricultural facilities and projects efficiently and with good performance in the field of soil sciences and water resources within the framework of preserving natural resources, biodiversity and sustainable development.

5. Can analyze the ways in which humans, plants and soil interact with the general environment in order to enhance the conservation of natural resources and protect the environment.

6. Uses scientific foundations and appropriate technology in inventorying and dividing lands and determining their use patterns and evaluates the characteristics of soil and water; and determines appropriate agricultural use patterns under different environmental conditions and with conditions for preserving soil from deterioration and water From pollution for a clean and sustainable environment.

7. Gain knowledge and skills related to the origin, classification and maintenance of lands and solve related problems with the aim of increasing productivity

8. Able to use modern methods and the analytical approach in planning and implementing fertilization programs and benefiting from the land and water units in a sustainable concept and controlling waste and reducing pollution to obtain an environmentally safe agricultural product.

9. Capable to evaluate and manage regulated water resources and their suitability for irrigation in a way that achieves agricultural economic development and preserves biodiversity and resource sustainability.

10. Capable of reclaim and cultivating desert lands or lands affected by salts, sodicity and calcareous and contributing effectively to increasing production capacity under different environmental conditions and maintaining high soil fertility and preventing it from deterioration.

11. He uses modern scientific methods for organic and biological agriculture to reach a safe agricultural product and proposes Various programs for mineral, organic and biological fertilization within the conditions of soil and environment conservation and water regulation.

12. Familiar with the effects of human activity on the environment and techniques for rehabilitating damaged soil and water systems and improve the use of methods for treating soil and water contaminated with minerals and pesticides.

13. Able to manage nutrients in agricultural production projects and familiar with the fertilizer industry.

14. Able to explore, manage and maximize groundwater storage and methods for treating contaminated groundwater.

15. Addresses the problems of drought, erosion, floods, water shortages and land degradation that endanger food production.

16. Able to manage and preserve local and international lands and waters in a more sustainable manner within the framework of ecosystem management and adaptation to climate change.

4. Student Learning Outcomes

NO	Learning outcome code	Learning outcome
1	LO#4,A1 LO#4,A2	To understand the basic information about (the principles of soil science with its five basic specializations, biodiversity, and sustainable development) and contribute to the use of theoretical and applied knowledge in the fields of agricultural engineering.
2	LO#4,B1	Apply the knowledge that gained in the field of soil, water and plant analysis in the applied field of maintain the development and sustainability of natural resources.
3	LO#1,B2	Employs acquired skills in the field of reclamation of degraded lands and increasing their productivity to meet market requirements using modern technologies.
4	LO#1,D1 LO#2,D2	Identify suitable modern irrigation systems for meeting the challenges arising from climate change.
5	LO#5,B3	Gain skills in the field of soil science and water resources that enable him to enter the labor market
6	LO#2,B3	Adopts soil and water resources management and maintenance plans to achieve agricultural land sustainability
7	LO#3,C3	Analyzes the causes of low land productivity that negatively impact the crop and suggests solutions regarding appropriate fertilizer recommendations.
8	LO#5.D2	Understands modern scientific methods in organic and biological agriculture to achieve safe agricultural products and proposes the development of various engineering programs for fertilization to sustain agricultural lands.
9	LO#1,D3 LO#6,E2	He is aware of the impacts of human activity on the environment and participates in the rehabilitation of soil and water systems.
10	LO#3,C3	Develops new ideas about natural resource engineering applications with knowledge of sustainability and project design and management knowledge.
11	LO#6,E3	Aware of the problems caused by negative human activity in the use of soil, water and plants, while taking into account the conditions of environmental conservation according to local and global determinants.

Outcome 1

Identification of Complex Relationships

Graduates will be able to illustrate the principles of soil sciences and explain soil classes , their texture and other properties.

Outcome 2

Oral and Written Communication

Graduates will be able to formally communicate the results of soil properties using both oral and written communication skills.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking

Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper.

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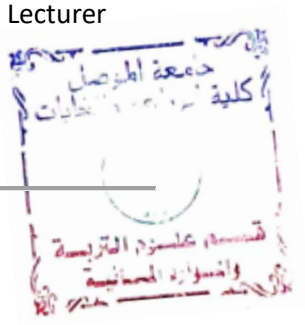

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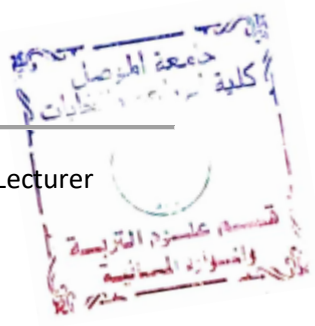

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6. Credits, Grading and GPA

Credits

University of Mosul is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st module score x ECTS) + (2nd module score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOM1031	**COMPUTER**	47	28	3.00	B	
UOM1040	**DEMOCRACY and HUMAN RIGHTS**	32	18	2.00	B	
UOM1021	**ENGLISH LANGUAGE1**	32	18	2.00	B	
MAT1010	**MATHEMATICS**	63	112	7.00	B	
ACE1020	**AGRICULTURAL CARRER ETHICS**	62	63	5.00	S	
END1030	**ENGINEERING DRAWING**	63	87	6.00	B	
AET1040	**AGRICULTRAL ENGINEERING TECHNIQUES TRANSFER**	63	62	5.00	C	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOM1011	**ARABIC LANGUAGE1**	32	18	2.00	B	
BSS1050	**BIOSAFETY and SECURITY**	47	28	3.00	S	
AGS1060	**AGRICULTURAL STATISTICS**	78	47	5.00	C	
BIO1070	**BIODIVERSITY**	63	62	5.00	C	
AGI1080	**AGRICULTURAL INFORMATICS**	63	62	5.00	C	
SUD1090	**SUSTANIBLE DEVELOPMENT**	62	63	5.00	C	
AMT1100S	**AGRICULTURAL MARKETING TECHNIQUES**	32	93	5.00	C	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOM1012	**ARABICLANGUAGE 2**	32	18	2.00	B	**ARABIC LANGUAGE1**
UOM2050	**The CRIMES of the BATH REGIME in IRAQ**	32	18	2.00	B	

IPM2110	**INTEGRATED PEST MANAGEMENT**	63	62	5.00	C	
AEM2120	**AGRICULTRAL ENGINEERING PROJECT MANAGEMENT**	78	72	6.00	C	
DAE2160	DESIGN AND ANALYSIS of EXPERIMENTS	63	62	5.00	C	
APT2140	**AGRICULTURAL PRODUCTION TECHNOLOGIES**	63	62	5.00	C	
FTP2150	**FOOD TECHNOLOGIES and HEALTH AGRICULTRAL PRODUCTS**	63	62	5.00	C	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOM2022	**ENGLISH LANGUAGE 2**	32	18	2.00	B	ENGLISH LANGUAGE1
UOM2032	**COMPUTER SKILLS 2**	47	28	3.00	B	COMPUTER SKILLS1
APT2130	AGRICULTURAL PRODUCTION MECHANIZATION TECHNIQUES	63	62	5.00	C	
DPF2170	**DESIGN and PLANNING of AGRICULTURAL FACILITIES**	63	62	5.00	C	
BEI2180	**BENEFICAL INSECTS**	63	62	5.00	C	
SWS2190	Soil and WATER SUITBILITY SOIL	63	62	5.00	C	
BIA2200	BIOCHEMICAL ANALYSIS	63	62	5.00	C	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
SOF3210	**SOIL FERTILITY**	32	18	2.00	C	
ASM3220	AGRICULTURAL SOIL MECHANICS	63	12	3.00	B	
DRE4590	DRENAGE	63	62	5.00	C	
SOP3500	SOIL PHYSICS	63	62	5.00	C	
SWP3510	SOIL and WATER POLLUTION	63	62	5.00	C	
RES3230	REMOTE SENSING	63	62	5.00	C	
SOC3520	SOIL CHEMISTRY	63	62	5.00	C	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
SOS3530	**SOIL SALINITY**	48	52	4.00	C	
AGR3540	**AGROGEOLOGY**	63	62	5.00	C	
SOM3550	**SOIL MINERALS**	63	62	5.00	C	
SOM3560	**SOIL MORPHOLOGY**	63	62	5.00	C	
SWA3570	**SOIL, WATER and PLANT ANALYSIS**	63	62	5.00	C	
HWR3580	**HYDROLOGY and WATER RESOURCES**	63	62	5.00	C	
SEM3260	**SEMINARS**	17	8	1.00	C	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MIT4350	MODERN IRRIGATION TECHNIQUES	63	12	3.00	C	
SSC3500	SOIL SURVEY and CLASSIFICATION	63	62	5.00	C	
SOC4600	SOIL CONSERVATION	63	62	5.00	C	
SOM4610	SOIL MICROBIOLOGY	63	62	5.00	C	
DES4620	DESERTIFICATION	63	62	5.00	C	
SEM4280	SOIL ENVIRONMENT METEOROLOGY	63	62	5.00	C	
AEP4290	AGRICULTRUAL ENGINEERING PROJECT1	47	3	2.00	C	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PLN4370	**PLANT NUTRITION**	63	12	3.00	C	
FET4630	**FERTILIZERS TECHNIQUES**	63	62	5.00	C	
LAR4640	**LAND RECLAMATION**	63	62	5.00	C	
SOM4650	**SOIL MANAGEMENT**	63	62	5.00	C	
SWR4660	**SOIL, WATER and PLANT RELATIONSHIP**	63	62	5.00	C	
SAT4310	**SMART AGRICULTURAL TECHNIQUES**	63	62	5.00	C	
AEP4292	**AGRICULTRUAL ENGINEERING PROJECT2**	47	3	2.00	C	

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