Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

1. Program Vision

The Department of Soil Sciences and Water Resources seeks to be one of the departments of advanced agricultural colleges in graduating competent agricultural engineers in the field of soil sciences and water resources to place them in the labor market and contribute to raising plant production by increasing soil fertility and improving its various qualities.

2. Program Mission

Leadership and excellence as a professional university that works to qualify and graduate national human resources with a high degree of competence for the labor market in the region. And to be a major source of applied scientific research that supports economic development and effective participation in social welfare.

3. Program Objectives

The program aims to prepare cadres of agricultural engineers specialized in the five soil sciences: soil chemistry, soil physics, soil biology, soil fertility, soil surveying and classification, and employ them in work in the local market and all state departments.

4. Program Accreditation

The department is working to obtain program accreditation by applying the standards launched by the Ministry

5. Other external influences

Field visits to stations and relevant state institutions

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Notes*
Institution Requirements	15	29	15.38	Basic
College Requirements	19	62.5	33.15	Basic
Department Requirements	30	97	51.45	Basic
Summer Training	1			Basic
Other				
The total	65	188.5		

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours
First/ first semester	0C13101	Analytical chemistry	30 theoretical + 45 practical
	0C13102	General physics	30 theoretical + 45 practical
	U013101	Mathematics 1	30 theoretical
	0C13103	Engineering Drawing	45 practical
	U013102	Democracy and human rights	30 theoretical
	0C13104	Principles of animal prod.	30 theoretical + 45 practical
	0C13105	Principles of field crops	30 theoretical + 45 practical
	U013103	Computer 1	30 practical
First/ second semester	0023101	Geology	30 theoretical + 45 practical
	0C23101	Organic chemistry	30 theoretical + 45 practical
	0C23102	Principles of fruit production	30 theoretical + 45 practical
	0C23103	Space and leveling	30 theoretical + 45 practical
	U023101	Computer 2	30 practical
	U023102	English language	30 theoretical
	0C23104	Agriculture economy	30 theoretical + 45 practical
	U023103	Mathematics 2	30 theoretical
	U023104	Arabic language	30 theoretical
	U023105	Crimes of Ba'ath Party	30 theoretical
	0C13201	Biochemistry	30 theoretical + 45 practical
	0013201	Principles of soil science	30 theoretical + 45 practical

Second/ first semester	0C13202	Principles of statistics	30 theoretical + 45 practical
	0013202	Microbiology	30 theoretical + 45 practical
	0C13203	Vegetables production	30 theoretical + 45 practical
	U013201	Computer 3	30 practical
	0C13204	Agricultural machin.& equip.	30 theoretical + 45 practical
Second/ second semester	0023201	Soil, water, and plant analysis	30 theoretical + 45 practical
	0C23201	Basics of plant protection	30 theoretical + 45 practical
	0023202	Soil environment&Atmospher.	30 theoretical + 45 practical
	0C23202	Principles of agri. extension	30 theoretical
	0023203	Land settlement & adjustment	30 theoretical + 45 practical
	0C23203	Plant Physiology	30 theoretical + 45 practical
	U023201	English language	30 theoretical
	U023202	Computer 4	30 practical
Third/ first semester	0013301	Soil physics	30 theoretical + 45 practical
	0013302	Soil chemistry	30 theoretical + 45 practical
	0013303	Soil fertility	30 theoretical + 45 practical
	0013304	Irrigation	30 theoretical + 45 practical
	0013305	Soil morphology	30 theoretical + 45 practical
	0C13301	Experi. Design and analysis	30 theoretical + 45 practical
	0013306	Soil and water pollution	30 theoretical + 45 practical
	U013301	English language	30 theoretical
Third/ second semester	0C23301	Economics of natural resourc.	30 theoretical
	0023301	Drainage	30 theoretical + 45 practical
	0023302	Soil mineralogy	30 theoretical + 45 practical
	0C23302	Remote Sensing	30 theoretical + 45 practical
	0023303	Soil salinity	30 theoretical + 45 practical
	0023304	Organic soil matter	30 theoretical + 45 practical
Fourth/ first semester	0013401	Soil survey and classification	30 theoretical + 45 practical
	0013402	Soil and conservation	30 theoretical + 45 practical
	0013403	Soil microbiology	30 theoretical + 45 practical
	0013404	Plant nutrition	30 theoretical + 45 practical
	0013405	Hydrology	30 theoretical + 45 practical
	U013401	English language	30 theoretically
	0013406	Graduation research project	30 practical
	0013407	Irrigation systems technolog.	30 theoretical + 45 practical
Fourth/ second semester	0023401	Fertilizer technologies	30 theoretical + 45 practical
	0023402	Land Reclamation	30 theoretical + 45 practical

	0023403	Soil management	30 theoretical + 45 practical
	0023404	Soil, water and plant relation.	30 theoretical + 45 practical
	0023405	Desertification	30 theoretical
	0023406	Graduation research project	30 practical
	0023407	Seminars	15 theoretical
	U023401	Sustainable development	30 theoretical
	U023402	Professional Ethics	15 theoretical

8. Expected learning outcomes of the program

Knowledge	
Cognitive goals	Student learns about the concept of soil and its geological components. The student learns about the types of soil and the external influences that contributed to the formation of soil. The student learns about the nutrients found in the soil.
Skills	
Skills objectives of the program	Thinking skill Scientific research skills Teaching skills
Ethics	
Evaluation	Theoretical tests Practical tests Weekly reports

9. Teaching and Learning Strategies

1- Explanation and clarification

2- Lecture method

3- Practical lessons in the lab.

4- Scientific trips to relevant departments and research stations and Self-learning method

10. Evaluation methods

1-Theoretical tests

2- Practical tests

3- Reports and studies

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Soil and water resources	Soil microbiology			2	
Professor	Soil and water resources	Soil fertility and fertilization			2	
Professor	Gardening	vegetable production			1	
Assistant Professor	Soil and water resources	Soil survey and classification			1	
Assistant Professor	agricultural economy	agricultural economy			1	
Assistant Professor	Plant/soil production	Soil chemistry			1	
Assistant Professor	Machine engineering	Agricultural machines			1	
Assistant Professor	Gardening	His saddle is green			1	
Lecturer	Soil and water resources	Soil fertility and fertilization			1	
Lecturer	Gardening	Heredity			1	
Lecturer	Vegetable production	Soil fertility			1	

assistant lecturer	Vegetable production	Soil physics			1	
assistant lecturer	Vegetable production	Soil microbiology			1	

Professional Development
Mentoring new faculty members
Guiding new, visiting, full-time and part-time faculty members by following them up by the Scientific Committee and the Department Head, attending lectures, and giving them the necessary directions.
Professional development of faculty members
1- Follow teaching and learning strategies 2- Evaluation of learning outcomes by the scientific committee 3- Professional development through holding development courses

12. **Acceptance Criterion**
Central admission

13. **The most important sources of information about the program**
1- The website of the college and university 2- University guide 3- Central Library 4- The most important books and sources for the department 5- The Internet

14. Program Development Plan
1-Teamwork: Working within the group effectively and actively. 2- Time management: Managing time effectively and setting priorities with the ability to work organized by appointments.

3- Leadership: The ability to direct and motivate others.

4- Independence at work.

5- Negotiation and persuasion (the student is able to influence and persuade others to discuss and reach an agreement.

6- Global skills (the student is able to speak and understand other languages and appreciate other cultures.

Program Skills Outline

				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First/ first semester		Computer basics	Basic	•	•	•	•	•	•	•	•	•	•	•	•
		Mathematics 1	Basic		•		•								
		Human rights and concepts of freedom	Basic					•				•		•	
		Principles of animal production	Basic						•						
		General physics	Basic		•			•		•			•		
		Principles of field crops	Basic		•	•					•				•
		analytical chemistry	Basic								•				

First/ second semester		**Engineering Drawing**	**Basic**		•								•		•
		English language 1	**Basic**		•			•						•	
		Arabic Language	**Basic**		•	•	•	•	•	•	•	•	•	•	
		Mathematics 2	**Basic**		•		•								
		Flat space	**Basic**					•				•		•	
		Fruit production	**Basic**						•						
		Principles of agricultural economics	**Basic**		•			•		•			•		
		organic chemistry	**Basic**		•	•					•				

		Principles of geology	Basic								•				
Second/ first semester		The crimes of the Baath regime in Iraq	Basic												
		English language 2	Basic												
		Computer applications	Basic												
		Principles of microbiology	Basic												
		Biochemistry	Basic												
		Environment and weather	Basic												

		conditions													
		Green production	Basic												
		Principles of statistics	Basic												
		Principles of soil science	Basic												
Second/ second semester		Computer applications 4	Basic												
		Phosphorus is a plant	Basic												
		Agricultural machines and machinery	Basic												
		Concepts of	Basic												

		freedom and democracy													
		Principles of agricultural extension	**Basic**												
		Soil, water and plant analysis	**Basic**												
		Land settlement and modification	**Basic**												
		Principles of plant protection	**Basic**												
Third/ first semester		**English language 3**	**Basic**												
		Design and	**Basic**												

		analysis of experiments													
		Soil, water and plant pollution	**Basic**												
		Organic matter in the soil	**Basic**												
		Soil fertility	**Basic**												
		Soil chemistry	**Basic**												
		Soil physics	**Basic**												
Third/ second semester		**irrigation**	**Basic**												
		Natural resource economics	**Basic**												
		Drainage	**Basic**												

		Soil minerals	**Basic**												
		Soil salinity	**Basic**												
		Remote sensation	**Basic**												
		Soil morphology	**Basic**												
Fourth/ first semester		**Graduation research project**	**Basic**												
		English language 4	**Basic**												
		Relationship between soil, water and plants	**Basic**												

		Irrigation systems technologies	**Basic**												
		Hydrology and water resources	**Basic**												
		Soil survey and classification	**Basic**												
		Soil and water maintenance	**Basic**												
		Soil microbiology	**Basic**												
Fourth/ second semester		**Graduation research project**	**Basic**												

		Seminars	**Basic**												
		Desertification	**Basic**												
		Fertilizer technologies	**Basic**												
		Plant nutrition	**Basic**												
		Soil management	**Basic**												
		Land reclamation	**Basic**												

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

Course Description Form

1. Course Name:
Analytical Chemistry
2. Course Code:
0C13101
3. Semester / Year:
First Semester / First Year
4. Description Preparation Date:
28/2/2024
5. Available Attendance Forms:
Actual attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical / 2 practical / units 3
7. Course administrator's name (mention all, if more than one name)
Name: **Lecturer.** Anmar Hamoudi Kadhim Email: anmarjhayl@mu.edu.iq
8. Course Objectives

Course Objectives	**1- Introducing students to the concept of analytical chemistry, as it is one of the branches of chemistry, and what is its importance and types.** **2- Identify the methods of chemical analysis and the difference between one method and another.** **3- Learn how to conduct multiple methods of chemical analysis and what is the best way to obtain results.** **4- Learn about methods of calculation and data analysis to obtain results.** **5- Learn how to interpret the results and give the correct recommendations.**
9. Teaching and Learning Strategies	
Strategy	**1. Explain and clarify the concept of analytical chemistry.** **2. Explain the types of chemical analyzes and the differences between them.** **3. Learn about the use of chemical and mechanical methods and the use of devices to conduct analytical tests.** **4. Identify the characteristics of chemicals, their degree of danger, how to deal with them, and calculation methods.**

	5. Learn about computational methods to obtain chemical analysis results. **6. Interpretation of results.**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	4	Definition of analytical chemistry and its importance	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
2nd	4	Classification of analytical chemistry	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
3rd	4	Types of analytical chemistry	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
4th	4	Analysis accounts Volumetric	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
5th	4	Types of calibrations used in volumetric analysis	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
6th	4	Learn about the concept of quivalence evidence and its theories	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
7th	4	Principles of gravimetric analysis and its requirements	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
8th	4	Gravimetric analysis methods	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
9th	4	Methods of deposition and isolation of materials	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
10th	4	Sediment contamination of materials and processing methods	Analytical Chemistry	Explanation and presentation Model and lecture	Examination
11th	4	Basic principles of spectroscopy	Analytical Chemistry	Explanation and presentation	Examination

				Model and lecture	

12th	**4**	**Spectral analysis devices and how to use them**	**Analytical Chemistry**	**Explanation and presentation Model and lecture**	**Examination**
13th	**4**	**Analysis using atomic absorption and emission**	**Analytical Chemistry**	**Explanation and presentation Model and lecture**	**Examination**
14th	**4**	**Atomic absorption devices, their types and methods of use**	**Analytical Chemistry**	**Explanation and presentation Model and lecture**	**Examination**
15th	**4**	**Practical application on spectroscopic and atomic analysis devices**	**Analytical Chemistry**	**Explanation and presentation Model and lecture**	**Examination**

11. Course Evaluation

1-Theoretical tests 25
2- Practical tests 15
3- Reports and studies 10
4- Final exam 50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Foundations of analytical chemistry. Dr. Thabet Saeed Al-Ghabsha and Dr. Moyed Qasim Al-Abaji. Ministry of Higher Education and Scientific Research. University of Al Mosul.**
Main references (sources)	
Recommended books and references (scientific journals, reports…)	**Iraqi academic scientific journals**
Electronic References, Websites	**https://learnchemistry12.com/2018/07/analytical-magdbook.html**

Course Description Form

13. Course Name:

General physics

14. Course Code:

0C13102

15. Semester / Year:
One/First
16. Description Preparation Date:
26\2\2024
17.Available Attendance Forms:
Actual presence
18.Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
19. Course administrator's name (mention all, if more than one name)
Name: Dr. Mohanad .T .Muften Email: mohanadturki@mu.edu.iq
20. Course Objectives

Course Objecti	**• General physics studies natural states of matter, general properties of matt and mechanical properties** **For the material.** **• It includes introducing the student to the assumptions of kinetic theory, molecular dimensions and interfacial distances.** **Brownian motion** **• Students learned about Boyle's law, compressibility and elasticity** **• The student learns about water: its molecular structure, its hydrogen bonding, and its properties as a solvent.** **• Study the concept of viscosity, Newton's law of viscosity** **• Identify optical devices, X-rays.**

21. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First	5	**The student gets to know the states natural matter, the general properties matter, and the mechanical properties matte**	General physics	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**The student will be familiar with assumptions of kinetic theory, molecu dimensions and interspace distances, a Brownian motion**	General physics	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**The student gets to know molecu speeds, molecular forces, collisio between molecules, and therr properties of matter**	General physics	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**The student gets to know Boyle's La compressibility and elasticity**	General physics	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**The student gets to know mechanics: laws of force and motion, the laws motion in one dimension, and the free of bodies**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Sixth	5	**The student gets to know Newton's laws motion: the first law of motion, the seco law of motion, Newton's law of univer gravitation**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Seventh	5	**The student gets to know water: molecular structure, its hydrog bonding, and its properties as a solvent**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Eighth	5	**The student gets to know surface tensi contact angle, and capillary property**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Ninth	5	**The student will learn about diffusion a the osmotic phenomenon**	General physic	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**The student will learn about viscos Newton's law of viscosity**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	5	**The student gets to know the flow of flu and fluid pressure**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	5	**The student will be familiar with volu and weight relationships, density objects, and porosity**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	5	**Surface area and quality**	General physic	**Explanation, presentation of model and lecture**	**the exam**
fourteent	5	**For the student to become familiar w optical devices**	General physic	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	5	**X ray**	General physic	**Explanation, presentation of model and lecture**	**the exam**

23. Course Evaluation	
1-Theoretical tests 25 2- Practical tests 15 3- Reports and studies 10 4- Final exam 50	
24. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Daniel Schaum: A series of Schaum's summaries of theories a problems in university physics
Main references (sources)	1- Principles of general physics _ Dr. Aqeel Mahdi Kazem 2- Dr. Rahim Abdelkatal: University Physics, Part 1, Mechan and Properties of Matter, Wave Motion, and Heat
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Internet** **Physics Pdf Book**

Course Description Form

25. Course Name:
Mathematic 1
26. Course Code:
U013101
27. Semester / Year:
First Semester / First Year
28. Description Preparation Date:
28/2/2024
29.Available Attendance Forms:
Actual attendance
30.Number of Credit Hours (Total) / Number of Units (Total)
2 Theoretical / 2 Units
31. Course administrator's name (mention all, if more than one name)
Name: **Lecturer.** Anmar Hamoudi Kadhim Email: anmarjhayl@mu.edu.iq
32. Course Objectives

Course Objectives	**1- Possessing the skill of thinking and having the ability to find solutions using the correct laws and mathematical operations.** **2- Learn about methods of calculating matrices and functions and their types.** **3- Identify applications related to matrices and types of functions.** **4- Learn how to draw a function** **5- Using new mathematical methods to perform solutions.**

33. Teaching and Learning Strategies

Strategy	**1. Explaining and clarifying the mathematical concept and stating the laws related to it.** **2. Give some examples related to the topic.** **3. Involve students during the lecture in solving examples and problems using mathematical laws.** **4. Giving them homework and exercises related to the topic that was discussed in the lecture.** **5. Conduct daily tests for students in addition to monthly tests.**

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	2	Matrix	Mathematic 1	Explanation and presentation Model and lecture	Examination
2nd	2	Types of Matrix	Mathematic 1	Explanation and presentation Model and lecture	Examination
3rd	2	Computational methods use In solving matrices	Mathematic 1	Explanation and presentation Model and lecture	Examination
4th	2	Applications in solving functions and finding matrix inverses	Mathematic 1	Explanation and presentation Model and lecture	Examination
5th	2	Mathematical functions	Mathematic 1	Explanation and presentation Model and lecture	Examination
6th	2	Function components	Mathematic 1	Explanation and presentation	Examination

				Model and lecture	
7th	**2**	**Types of Mathematical function**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
8th	**2**	**Differential relations used In the function**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
9th	**2**	**Higher ranks of Function**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
10th	**2**	**Partial derivatives**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
11th	**2**	**Function applications**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
12th	**2**	**Increasing, decreasing, and endings Great and small**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
13th	**2**	**Concavity and convexity curves in the function**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
14th	**2**	**Drawing functions**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
15th	**2**	**Solved problems and examples of graphing the function**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**

35. Course Evaluation

1-Theoretical tests 30
2- Daily tests 10
3- Homework 10
4- Final exam 50

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- **George B. Thomas, 2003. Calculus and Analytic Geometry.**
Main references (sources)	**1- Theories and problems in advanced**

	calculus. 2008. Murray R. SPIEGEL. Eighth Arabic edition. International House for Cultural Investments. Egypt. 2- 3000 solved problems in calculus. Elliot Mendelsohn. International Academy. Beirut, Lebanon.
Recommended books and references (scientific journals, reports…)	**Iraqi academic scientific journals**
Electronic References, Websites	

Course Description Form

37. Course Name:	
Engineering Drawing	
38. Course Code:	
0C13103	
39. Semester / Year:	
First semester / First	
40. Description Preparation Date:	
26\2\2024	
41.Available Attendance Forms:	
Actual presence	
42.Number of Credit Hours (Total) / Number of Units (Total)	
theoretical practical 2 units 1	
43. Course administrator's name (mention all, if more than one name)	
Name: Assistant Professor Dr. Ahmed Merza Abood Email :ahmedme@mu.edu.iq	
44. Course Objectives	
Course Objecti	**1- Teaching students, the basic concepts related to access to the simple basics of ar engineering drawing for students of the College of Agriculture.** **2- Development the ability of preparing engineering designs for agricultural projects,** **3- Student be able to read various engineering drawings and implement them in**

	Reality.

45. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**The student gets to know the tools of engineering drawing and its uses.**	**1**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**The student gets to know types of lines and dimensions**	**2**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2	**The student gets to know the curves.**	**3**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2	**Student able to recognize the ellipse**	**4**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**Student able to recognize sections in engineering drawing**	**5**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2	**The student will be familiar with the**	**6**	**Explanation,**	**The exam,**

		vertical projection of points, straight lines, and flat surfaces		**presentation of model and lecture**	**Quizzes, Reports, and activities in class**
Seventh	2	**The student will be familiar with the vertical projection of points, straight lines, and flat surfaces**	**7**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eighth	2	**student will know the complete sections**	**8**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**student will recognize the semi-section area**	**9**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Tenth	2	**The student gets to know the sector parallel to the basic levels and its applications**	**10**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**For the student to become familiar with exercises on the complete section and the semi-section**	**11**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2	**Student becomes familiar with three-dimensional drawing and its conditions**	**12**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Student becomes familiar with the solid drawing of three-dimensional drawing.**	**13**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
fourteent	2	**student gets to know the isometric drawing.**	**14**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Fifteenth	2	**Student becomes familiar with drawing parallel surfaces.**	**15**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**

47. Course Evaluation	
1- Monthly tests 30 2- Daily tests 10 3- Daily duties and attendance 10	
48. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Engineering drawing for students of the College of Agricultu (Dr. Eng. Natiq Sabri - University of Mosul 1995)
Main references (sources)	Engineering drawing (Professor Abdul Rasul Al-Khafaf University of Technology 1990)
Recommended books and references (scientific journals, reports…)	Engineering drawing books for all engineering disciplines - Noor Library
Electronic Referenc Websites	https://www.gulf-up.com/uz2pnxd1v0st

49. Course Name:
human rights
50. Course Code:
U013102
51. Semester / Year:
First/first
52. Description Preparation Date:
1\9\2023
53.Available Attendance Forms:
In person + electronic
54.Number of Credit Hours (Total) / Number of Units (Total)
Number of Credit Hours (Total) 30 hours
55. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Muhammad Radwan Mahmoud Email: modrn@mu.edu.iq
56. Course Objectives

	1The student's awareness of the historical development of human rights through explaining development and the various stages that occurred **It has passed through to the present time.** **2- Introducing the student to human rights in the heavenly religions and emphasizing the rol the Islamic religion that has been preserved** **These rights are distinct.** **3- Educating the Iraqi student about his civil, political, economic, social and cultural rights.** **4 - The student will learn about the role of the United Nations and its beginnings in support and shaping the principles of human rights** **Then its development and the establishment of various human rights organizations.** **5- That the student will be able to know the rights and freedoms stipulated in the Ir Constitutio Course Objectives** **n of 2005** **6- That the student is able to defend his rights after possessing a culture of human rights.**

57. Teaching and Learning Strategies

Strategy	**Strategic teaching and learning methods** **Audio methods (teaching explanation of the topic)** **Style of writing on the blackboard** **The method of direct dialogue between the teacher and the student, with the student's evaluation in class participation**

58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Introduction: What human rights are. Chapter One: The history of human rights**	**1**	**Explanation, presentation of model and lecture**	**Discussing and exams**
the secon	2	**History of human rights in Iraqi civilizations and in Greek civilization and civilization Roman, Persian and Egyptian**	**2**	**Explanation, presentation of model and lecture**	**Discussing and exams**
the third	2	**Human rights in religions Jewish and Christian heaven And Islam**	**3**	**Explanation, presentation of model and lecture**	**Discussing and exams**
the fourth	2	**History of human rights in Middle Ages feudalism The church and the royal institution**	**4**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Fifth	2	**Human rights in legislation Rights Revolutions of the West and the East**	**5**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Sixth	2	**Human rights and definition And the definition**	**6**	**Explanation, presentation of model and lecture**	**Discussing and exams**

Seventh	2	**First month exam**	**7**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Eighth	2	**Forms of human rights**	**8**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Ninth	2	**Civil human rights And political**	**9**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Tenth	2	**Economic human rights Social and cultural**	**10**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Eleventh	2	**Modern human rights**	**11**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Twelfth	2	**Human rights in the declaration Universal 1948**	**12**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Thirteent	2	**Non-governmental organizations And human rights**	**13**	**Explanation, presentation of model and lecture**	**Discussing and exams**
fourteent	2	**Human rights in the constitution Iraqi in 2005**	**14**	**Explanation, presentation of model and lecture**	**Discussing and exams**
Fifteenth	2	**Second month exam**	**15**	**Explanation, presentation of model and lecture**	**Discussing and exams**

59. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

60. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1-Human Rights, written by: Hafez Alwan Hamadi Al-Dulaimi 2- Universal human rights between theory and practi written by Jack Donnelly. 3-Human Rights, Children and Democracy, written by: Mah Saleh Allawi Al-Jubouri and others
Main references (sources)	The Philosophy of Human Rights, written by Ansam Amer Sudani. Human Rights in the Western Religious Heritage a Islam, written by: Muhammad Jalaa Idris and Amal Muhamm Abd al-Rahman Rabie
Recommended books and references (scientific journals, reports…)	Iraqi -reviewed journals **/https://www.elsevier.com**
Electronic Referenc Websites	**1–United Nations website**:

	https://www.un.org/ar/global issues/human-rights – Website of the Office of the High Commissioner, United Nations High Commissioner for Human Rights https://www.ohchr.org/ar/hr-bodies/hrc/

Course Description Form

61. Course Name:
Principles of animal production
62. Course Code:
0C13104
63. Semester /
Year: the first 2024
64. Description Preparation Date
:2024/1/18
65. Available Attendance Forms:
weekly
66. Number of Credit Hours (Total) / Number of Units (Total)
30 hrs (3 unit)
67. Course administrator's name (mention all, if more than one name)
Name: Hassan Awied Fazaa Email: hassanawied@mu.edu.iq
68. Course Objectives

Course Objectives	• **Identify the general economic aspects** • **Identify the economic aspect of agricultural projects and calcula economic feasibility** • **Analysis of cost and revenue items for the agricultural project** • **Identify the role of the agricultural sector in the economic structure of state**

69. Teaching and Learning Strategies	
Strategy	

70. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
first.	3		*Overview of livestock production	Theoretical lectur	Theoretical exam
second.	3		*Classification of ruminants		
third.	3		*Livestock producing milk and meat		
fourth.	3		*Sheep meat and wool		
Fifth.	3		*International and local types of goats		
six.	3		*Buffalo breeding		
Seventh.	3		* Poultry classification		
Eight.	3		* Some methods of raising fish		
Ninth.	3		*Farm animal nutrition		
tenth.	3		Fish feeding*		
eleventh	3		* Some types of fish in Iraq		

71. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

72. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	* Principles of animal production * principles of fish farming
Main references (sources)	1-The basics of sheep and goat production, Dr. Ja Elia Al-Qass 2-Fish farming, Dr. Qamar Al-Daham 3- Milk cattle production, Dr. Naguib Tawfiq
Recommended books and references (scientific journals, reports…)	scientific journals
Electronic References, Websites	Internet websites

Course Description Form

73. Course Name:
Basics of field crops
74. Course Code:
0C13105
75. Semester / Year:
First / first
76. Description Preparation Date:
27\2\2024
77.Available Attendance Forms:

In person + electronic

78. Number of Credit Hours (Total) / Number of Units (Total)

Number of Credit Hours (Total) 75 hours

79. Course administrator's name (mention all, if more than one name)

Name: Prof. Dr. Shaimaa Ibrahim Mahmood AL Refai
Email: Shaimaaibrahim@mu.edu.iq

80. Course Objectives

Course Objectives **• Strengthening efforts aimed at using and prop managing water resources.** **• Develop a future vision for developing w harvesting technologies to support water resource** **• Increasing the volume of irrigation water availa for agricultural use, by adding dams, ta irrigation canals, and drilling wells, in additio development projects in this field and water su projects.**	**1- The course examines the identification of the m important grain crops in Iraq and the world** **2-It includes studying the scientific methods used growing grain crops** **3 -Study the appropriate environmental conditions growing each important field crop** **4- Defining the most important ways to incre productivity for each field crop** **5-Study the problems related to pests and diseases each field crop**

81. Teaching and Learning Strategies

Strategy	**Strategic teaching and learning methods** **Audio methods (teaching explanation of the topic)** **Style of writing on the blackboard** **The method of direct dialogue between the teacher and the student, with student's evaluation in class participation** **Conduct experiments.**

82. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week	**2Theoretical** **3 Practical**		Field crops: their definition, Its development, its creators		**Exams , reports, discussions Quizzes**

second week	**2Theoretical 3 Practical**		Environmental factors in Iraq and in The world and its relationship to crop growth Field, location and surface, climate Soil, water resources		**Exams , reports, discussions**
the third week	**2Theoretical 3 Practical**		division of field crops, According to the life cycle		**Exams , reports, discussions**
fourth week	**2Theoretical 3 Practical**		Temperature, factors affecting Heat, temperature relationship With crops, crop adaptation To reduce the effect of temperatures And temperature damage		**Exams , reports, discussions**
The fifth week	**2Theoretical 3 Practical**		For light, the importance of light for plants, Adaptation of plants to light, importance Light in seed germination		**Exams , reports, discussions**
the sixth week	**2Theoretical 3 Practical**		**First monthly exam**		**Exams , reports, discussions**
Seventh week	**2Theoretical 3 Practical**		Water, water in the soil and its extent Crops benefit from it, balance internal water of the plant, Water consumption, efficient Water use, effect of water deficiency On crops, drought damage		**Exams , reports, discussions**
The eighth week	**2Theoretical 3 Practical**		Soil, soil texture, composition Soil, soil components, matter Soil organics, soil water, Soil air, harmful effect Soil salts on crops		
Week nine	**2Theoretical 3 Practical**		Air, air pollution, wind effect Crops, soil erosion by Crop winds		**Exams , reports, discussions**
The tenth week	**2Theoretical 3 Practical**		Mutual benefit, competition, opposition		**Exams , reports, discussions**
Week eleven	**2Theoretical 3 Practical**		Seeds and their importance, composition and maturity Seed dormancy, diagnosis Seed grading screening, storage Seeds, marketing		**Exams , reports, discussions**
The twelfth week	**2Theoretical 3 Practical**		Weeds and ways to combat them		**Exams , reports, discussions**
The	**2Theoretical**		The updated one		**Exams ,**

thirteenth week	**3 Practical**		Agricultural courses		**reports, discussions**
The fourteenth week	**2Theoretical 3 Practical**		The updated one Breeding and improving field crops Major crops in the world And Iraq		**Exams , reports, discussions**
The fifteenth week			**The second monthly exam**		

83. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

84. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of field crops Dr.. Majeed Mohsen Ansari Dr. Abdel Hamid Ahmed Al-Younis Dr.. Ghanem Saadallah Hasawi Dr. Wafqi Sha Al-Shamaa
Main references (sources)	From methodological books, help books, Internet, and scientific research
Recommended books and references (scientific journals, reports...)	Iraqi Scientific journals in basic specializations
Electronic References, Websites	Al-Muthanna University e-learning website https://agr.mu.edu.iq/

Course Description Form

85. Course Name:
Computer applications1
86. Course Code:
U013103
87. Semester / Year:
FIRST/FIRST
88. Description Preparation Date:
29\2\2024
89.Available Attendance Forms:
Actual presence
90.Number of Credit Hours (Total) / Number of Units (Total)
30 HRS /2

91. Course administrator's name (mention all, if more than one name)
Name: Dr. Karrar Hameed Abdulkareem Email: khak9784@mu.edu.iq

92. Course Objectives	
Course Objecti	• **The student gets to know Microsoft access in details.** • **The student should know advantages of using Microsoft access in real life.** • **The student should apply many commends and processes on Microsoft access.**

93. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

94. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Introduction to Microsoft access**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
second	2	**Access main interface**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
third	2	**Tabs and groups**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
fourth	2	**Tabs and groups**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
Fifth	2	**Tabs and groups**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
Sixth	2	**Practical Example**	**Microsoft access**	**Practical session**	**Exam**
Seventh	2	**Practical Example**	**Microsoft access**	**Practical session**	**Exam**
Eighth	2	**Tables**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
Ninth	2	**Practical Example**	**Microsoft**	**Practical Example**	**Exam**
Tenth	2	**Queries**	**Microsoft access**	**Explanation, presentation of**	**Exam**

				model and lecture	
Eleventh	2	**Practical Example**	**Microsoft access**	**Practical session**	**Exam**
Twelfth	2	**Reports**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
Thirteent	2	**Control panel**	**Microsoft access**	**Explanation, presentation of model and lecture**	**Exam**
fourteent	2	**Practical Example**	**Microsoft access**	**Practical session**	**Exam**
Fifteenth	2	**Practical Example**	**Microsoft access**	**Practical session**	**Exam**

95. Course Evaluation

1-Theoretical tests 25
2- Practical tests 15
3- Reports and studies 10
4- Final exam 50

96. Learning and Teaching Resources

Required textbooks (curricu books, if any)	
Main references (sources)	1- Microsoft Access 2010 book(UNIVERSITY OF VIRGINIA HEALTH SYSTEM). 2- Lectures of Microsoft Access 2010 prepared by Eng.M.Abou Elale.
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**https://support.microsoft.com/ar-sa/office/%D8%A7%D9%84%D9%85%D9%87%D8%A7%D9%85-%D8%A7%D9%84%D8%A3%D8%B3%D8%A7%D8%B3%D9%8A%D8%A9-%D9%81%D9%8A-access-2010-268acfed-2484-4822-acb1-c30e58045588**

Course Description Form

97. Course Name:

Geology

98. Course Code:
0023101
99. Semester / Year:
SECOND/FIRST
100. Description Preparation Date:
26\2\2024
101. Available Attendance Forms:
Actual presence
102. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
103. Course administrator's name (mention all, if more than one name)
Name:As. Prof. Ahmed K. Fazaa Email ahmad.kadem @mu.edu.iq
104. Course Objectives

Course Objecti	• **The student gets to know the classification and types of fertilizers and the importance** • **• For the student to learn about methods of adding fertilizers** • **• The student should separate the positive and negative aspects of fertilize and its harm to plants** • **• For the student to recognize pollution from chemical fertilizers** • **• The student should evaluate soil fertility** •

105. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

106. Course Structure

Week	Hou	Required Learning Outcomes	Unit or subject	Learning method	Evaluation method

	rs		name		
First	2	**The student gets to know the concept of saline soils**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**For the student to know the sources of Soil**	Geology	**Explanation, presentation of model and lecture**	**the exam**
the third	2	**The student will be familiar with the means of Formation soil**	Geology	**Explanation, presentation of model and lecture**	**the exam**
the fourth	2	**The student will be familiar with the Ro formation**	Geology	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**The student will be familiar with the conditions of soil formation**	Geology	**Explanation, presentation of model and lecture**	**the exam**
Sixth	2	**student gets to know the types Rocks**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**For the student to recognize the aspects the earth systems**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**The student will be familiar with the indicators for determining the effect of Geology**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**The student will be familiar with the means of increasing the ability of Fiel Geology**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	2	**The student will be familiar with the factors determining the quality of irrigation water and the indicators used determine the quality of irrigation wate**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	2	**The student will be familiar with irrigati water classification systems**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	2	**The student will learn Ground Water**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**For the student to become familiar with problems of limestone soils**	**Geology**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	2	**The student will be familiar with the means of increasing the ability of plants tolerate salinity**	**GEOLOGY**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	2		**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**

107. Course Evaluation	
1-Theoretical tests 2- Practical tests 3- Reports and studies 4- Final exam	25 15 10 50
108. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	1- geology Book.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America**

Course Description Form

109. Course Name:
organic chemistry
110. Course Code:
OC23101
111. Semester / Year:
The first stage/spring semester
112. Description Preparation Date:
26/2/2024
113. Available Attendance Forms:
Presence
114. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical hours and 3 practical hours. Number of units: 3
115. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Jassim Kassim Menati Email: jasimiraqe@mu.edu.iq

116. Course Objectives

Course Objectives	• **1 Providing students with general informa about organic chemistry** • **2 Introducing students to alkanes** • **3 Introducing students to alkenes** • **4 Explanation of alkynes for students**

117. Teaching and Learning Strategies

Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

118. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	Introduction to organic chemistry	A lecture	Quiz
2	2	Theoretical lecture	Alkanes	A lecture	Quiz
3	2	Theoretical lecture	Alkenes	A lecture	Quiz
4	2	Theoretical lecture	Alkynes	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Aliphatic cyclic compounds	A lecture	Quiz
7	2	Theoretical lecture	Formation of the aromatic ring - activity and direction - preparation – interactions	A lecture	Quiz
8	2	Theoretical lecture	Aromatic compounds	A lecture	Quiz
9	2	Theoretical lecture	Amines	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Aliphatic and aromatic halides	A lecture	Quiz
12	2	Theoretical lecture	Alcohols, phenols and ethers	A lecture	Quiz
13	2	Theoretical	Aldehydes and ketones	A lecture	Quiz

		lecture			
14	2	Theoretical lecture	Carboxylic acids	A lecture	Quiz
15	2	Theoretical lecture	Derivatives of carboxylic acids	A lecture	Quiz

119. Co2urse Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
120. Learning and Teaching Resources	
Required textbooks (curricular books, if any	Organic chemistry Abdul-Alah Al-Abdo and Ali Sulaiman Yoss
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Journal of Organic Chemistry
Electronic References, Websites	https://publications.iupac.org/compendium/index.html

Course Description Form

121. Course Name:	
Fruit production	
122. Course Code:	
OC23102	
123. Semester / Year:	
Second/ First	
124. Description Preparation Date:	
26\2\2024	
125. Available Attendance Forms:	
Actual presence	
126. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 3 practical units 3.5	
127. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mohanad .T .Muften Email: mohanadturki@mu.edu.iq	
128. Course Objectives	
Course Objecti	**• Enable students to distinguish between types of fruits according to their ar**

	of growth and distribution **• Enabling students to identify the most important types of fruits that fruit plants have** **• Introducing the student to the concept of floatation, types of flowers, and th relationship to pollination and parthenogenetic fruiting in plants** **• Introducing the student to vaccination and installation, the dates for performing it, the principles, and why we resort to vaccination and installati according to the principles**

129. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

130. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**Nutritional and economic importance**	Fruit production	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**Factors affecting fruit trees**	Fruit production	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**Division of fruit trees**	Fruit production	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**Care, storage and marketing of fruit fr fruit trees**	Fruit production	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**Fruit softening and its role in improv their properties**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Sixth	5	**Multiplication of fruit trees**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Seventh	5	**Vegetative propagation of fruit trees**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Eighth	5	**Create orchids**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**

Ninth	5	**Apples / pears – apples**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**Stone stones / apricots – peaches**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	5	**Pomegranate**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	5	**The Fig**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	5	**Olive**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
fourteent	5	**Date palm**	Fruit productio	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	5	**The grape**	**Fruit producti**	**Explanation, presentation of model and lecture**	**the exam**

131. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

132. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Faslja Fruit Trees\Hassan Jundia - Evergreen Fruit\Makki Alw Al-Khafaji, Suhail Aliwi Atrah, and Alaa Abdel-Razzaq
Main references (sources)	Fruit production for departments not specialized in horticultu - Dr. Ali Hussein Abdullah Al-Douri / Dr. Adel Khader Saeed Raw
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Internet**

Course Description Form

133. Course Name:

Surveying

134. Course Code:

OC23103

135. Semester / Year: 2023-2024

Second / first

136. Description Preparation Date:

1-9-2023

137. Available Attendance Forms:

Attended

138. Number of Credit Hours

(60) / Number of Units (3)

139. Course administrator's name (mention all, if more than one name)

Name: JAWAD KADHIM AL ARIDHEE
Email: jawadaridhee@mu.edu.iq

140. Course Objectives

Course Objectives	• to determine, measure and represent land, three-dimensional objects, point- fields and trajectories; • to assemble and interpret land and geographically related information, • to use that information for the plannin and efficient administration of the lan the sea and any structures thereon; an • to conduct research into the above practices and to develop them

141. Teaching and Learning Strategies

Strategy	1-Explaining the importance of using space and training students to benefit from agricultural aspect 2- Explaining the modern and advanced method in agriculture of finding points of high a low and thus leveling agricultural lands

142. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Definition of the surveying,		Theoretical +	test

		the types of surveys, the requirements of a good survey and its the importance in agriculture		practical lecture	
2	4	Tape measurement- conditions for selecting stations- field book arrangement		Theoretical + practical lecture	test
3	4	Measurement systems		Theoretical + practical lecture	test
4	4	Mistakes& Errors in serving		Theoretical + practical lecture	test
5	4	Drawing scale		Theoretical + practical lecture	test
6	4	Areas-regular & irregular shapes		Theoretical + practical lecture	test
7	4	Leveling terminology , types of adjustment, uses of the leveling device		Theoretical + practical lecture	test
8	4	Types of levelling , the phenomena of curvature and fracture and their treatment.		Theoretical + practical lecture	test
9	4	Methods of calculating point levels and elevation difference- direct and indirect		Theoretical + practical lecture	test
10	4	Making longitudinal sections		Theoretical + practical lecture	test
11	4	Calculating point levels , measuring distances ,drawing them on graph paper		Theoretical + practical lecture	test
12	4	Calculating the areas and volumes		Theoretical + practical lecture	test
13	4	Topographic maps		Theoretical + practical lecture	test
14	4	Contour lines		Theoretical + practical lecture	test
15	4	Theodolite device		Theoretical + practical lecture	test

143. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

144. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Surveying**
Main references (sources)	Basic Farm Machinery .J.M.shippen,C.R.E and C.H.Clover
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

145. Course Name:
Computer fundamentals 2
146. Course Code:
U023101
147. Semester / Year:
Second / First
148. Description Preparation Date:
7\3\2024
149. Available Attendance Forms:
Actual presence
150. Number of Credit Hours (Total) / Number of Units (Total)
2 /2
151. Course administrator's name (mention all, if more than one name)
Name: Dr. Karrar Hameed Abdulkareem Email: khak9784@mu.edu.iq
152. Course Objectives

Course Objecti	• **The student gets to know computer fundamentals in details.**

	• **The student should know advantages of using computer device and main parts of t device in real life.** • **The student should apply many commends and processes on windows 7.**

153. Teaching and Learning Strategies

Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

154. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Introduction to Computer Fundamentals and computer generations**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
second	2	**Abilities and uses of computer Device**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
Third	2	**Computer parts**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
fourth	2	**Computer parts**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**Computer parts**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	2	**Practical Example**	**Computer Fundamentals**	**Practical session**	**the exam**
Seventh	2	**Practical Example**	**Computer Fundamentals**	**Practical session**	**the exam**
Eighth	2	**Introduction to windows 7**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**User interface and relative processes**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
Tenth	2	**Computer components (partitions, folders, and files)**	**Computer Fundamentals**	**Practical session**	**the exam**
Eleventh	2	**Practical Example**	**Computer Fundamentals**	**Practical session**	**the exam**
Twelfth	2	**Start menu and taskbar**	**Computer Fundamentals**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**Control panel**	**Computer Fundamentals**	**Explanation, presentation of**	**the exam**

				model and lecture	
fourteent	2	**Practical Example**	**Computer Fundamentals**	**Practical session**	**the exam**
Fifteenth	2	**Practical Example**	**Computer Fundamentals**	**Practical session**	**the exam**

155. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

156. Learning and Teaching Resources

Required textbooks (curricu books, if any)	
Main references (sources)	- Basic Computer course book(Free University of Bolzano Bozen – Dr. Paolo Coletti - Edition 8.0 (1 March 2016)). - Introduction to the computer, prepared by Ahm Muhammad Ibrahim.
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**https://support.microsoft.com/ar-sa/office/%D8%A7%D9%84%D9%85%D9%87%D8%A7%D9%85-%D8%A7%D9%84%D8%A3%D8%B3%D8%A7%D8%B3%D9%8A%D8%A9-%D9%81%D9%8A-access-2010-268acfed-2484-4822-acb1-c30e58045588**

Course Description Form

157. Course Name:
English Language
158. Course Code:
U023102
159. Semester / Year:
Second semester/ The first
160. Description Preparation Date:
26\2\2024
161. Available Attendance Forms:

Actual presence

162. Number of Credit Hours (Total) / Number of Units (Total)

theoretical 2 practical units 1

163. Course administrator's name (mention all, if more than one name)

Name: Assistant Professor Dr. Ahmed Merza Abood
Email :ahmedme@mu.edu.iq

164. Course Objectives

Course Objecti	**- Teaching students, the basic concepts related to access to the simple basics of introduction to the English language for students of the College of Agriculture.** **- The student gets to know the concept of the English language.** **- Enabling students to know how to deal with the English language**

165. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

166. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Hello:** **- (am/is/are, your,my)** **- This is** **- How are you?** **- Good morning** **- What's this in English?** **- Numbers 1-10, Plurals**	**1**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**Your world:** **- Countries**	**2**	**Explanation, presentation of**	**The exam, Quizzes,**

		-He/she/they, his/her -Where's he from? - Fantastic/awful/beautiful - Numbers 11-30		**model and lecture**	**Reports, and activities in class**
the third	2	**All about you: - Jobs - am/are/is - Negatives and questions - Personal information - Social expressions**	**3**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2	**Family and friends: - Our/their - Possessive's - The family - has/have - The alphabet**	**4**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**The way I live: - Sports/food/drinks -Present simple-I/you/we/they - a/an - Languages and nationalities - Numbers and prices**	**5**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2	**Every day: - The time - Present simple-he/she - Always/sometimes/never - Words that go together - Days of the week**	**6**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2	**My favourites: - Questions words - Me/him/us/them - This /that - Adjectives - Can I …?**	**7**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eighth	2	**Where I live: - Rooms and furniture - There is/are - Prepositions - Directions**	**8**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**Times past: - Saying years - Was/where born - Past simple-irregular verbs - Have/do/go - When's your birthday**	**9**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Tenth	2	**We had a great time: - Past simple-regular and irregular - Questions and negatives - Sport and leisure - Going sightseeing**	**10**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**I can do that: - Can/can't - Adverbs - Adjective**	**11**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and**

		- Noun **- Everyday problems**			**activities in class**
Twelfth	2	**Please and thank you:** **- I'd like-some/any** **- In a restaurant** **- Signs all around**	**12**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Here and now:** **- Colours and clothes** **- Present continuous** **- Opposite verbs** **- What's the matter?**	**13**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
fourteent	2	**It's time to go:** **- Future plans** **- Grammar revision** **- Vocabulary revision** **- Social expressions**	**14**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Fifteenth	2	**Reviewing**	**15**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**

167. Course Evaluation

1-Theoretical tests	35
2- Quizzes, Reports, and Class's Activities	15
4- Final exam	50

168. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Beginner Student's Book: New Headway Plus (John and Soars) Oxford University Press
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**Internet network**

Course Description Form

169. Course Name:
Principles of agricultural economics

170. Course Code:
OC23104
171. Semester / Year:
Second / first
172. Description Preparation Date:
1/9/2024
173. Available Attendance Forms:
174. Number of Credit Hours (Total) / Number of Units (Total)
Actual attendant
175. Course administrator's name (mention all, if more than one name)
Name: sadeq Hadi Hussein Email: Sadeq.hadi@mu.edu.iq

176. Course Objectives	
Course Objectives	**- Active participation in the classroom** **- Submit assignments from last week** **- Weekly participation**

177. Teaching and Learning Strategies	
Strategy	**1- Interest and knowledge of agricultural economics** **2- Defining the difference between general economics and agricultural economics** **3- Teaching students about the role of agricultural economics in supporting the economic development of the country**

178. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	Introduction to agricultural economics	The agricultural economy	Explanation presentation the model an lecture	Exams
second	5	The concept of the production functic			
third	5	Diminishing retur and production stages			
fourth	5	The demand . Law demand Factors affecting demand			
Fifth	5	Price elasticity of demand			
Sixth	5	Supply - Law of Supply Factors affecting supply			
Seventh	5	Price elasticity of supply	The agricultural economy	Explanation, presentation of t model and lectu	Exams
Eighth	5	Price and equilibrium price			
Ninth	5	Production costs			
Tenth	5	Agricultural prices			
Eleventh	5	Economic derivatives of cost functions			
Twelveth	5	Ways to reduce co Principle of equal marginal returns The principle of opportunity costs	The agricultural economy	Explanation, presentation of t model and lectu	Exams

179. Course Evaluation	
1- Theoretical tests	**25**
2- Practical tests	**15**
3- Reports and studies	**10**
4- Final exam	**50**

180. Learning and Teaching Resources	
Required textbooks (**curricular books**, **if any**)	**Agricultural Economics - Abdul Wahab Matar Al-Dahri** **Economic Theory - Ahmed Zubair Geata** **The Economics of Agricultural Production - David Debreton - Translated by Salem Younis Al-Naimi**
Main references (sources)	
Recommended books and references (scientific journals, reports…)	**Iraqi academic scientific journals**
Electronic References, Websites	Internet websites

Course Description Form

181. Course Name:
Mathematic 2
182. Course Code:
U023103
183. Semester / Year:
Second Semester / First Year
184. Description Preparation Date:

28/2/2024

185. Available Attendance Forms:

Actual attendance

186. Number of Credit Hours (Total) / Number of Units (Total)

2 Theoretical / 2 Units

187. Course administrator's name (mention all, if more than one name)

Name: **Lecturer**. Anmar Hamoudi Kadhim
Email: anmarjhayl@mu.edu.iq

188. Course Objectives

Course Objectives	**1- Possessing the skill of thinking and having the ability to find solutions using the correct laws and mathematical operations.** **2- Learn about methods of calculating matrices and functions and their types.** **3- Identify applications related to matrices and types of functions.** **4- Learn how to draw a function** **5- Using new mathematical methods to perform solutions.**

189. Teaching and Learning Strategies

Strategy	**1. Explaining and clarifying the mathematical concept and stating the laws related to it.** **2. Give some examples related to the topic.** **3. Involve students during the lecture in solving examples and problems using mathematical laws.** **4. Giving them homework and exercises related to the topic that was discussed in the lecture.** **5. Conduct daily tests for students in addition to monthly tests.**

190. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	**2**	**Cardinal functions and integration**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
2nd	**2**	**Laws of indefinite integration for algebraic functions**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
3rd	**2**	**Laws of indefinite integration for trigonometric**	**Mathematic 1**	**Explanation and presentation Model and**	**Examination**

		functions		**lecture**	
4th	**2**	**Laws of indefinite integration for exponential functions**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
5th	**2**	**Retail integration**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
6th	**2**	**Definite integral and its basic theorem**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
7th	**2**	**Calculate the area under the curve of a function using definite integration**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
8th	**2**	**The concept of the purpose of the function**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
9th	**2**	**Definitions of the purpose of the function and its theorems**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
10th	**2**	**The continuity of the function at a given point**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
11th	**2**	**Some theorems of continuity**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**

12th	**2**	**Algebraic operations on continuous functions**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
13th	**2**	**Continuity at a number And continuity in the field**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**
14th	**2**	**Continuous functions and solving equations**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**

15th	**2**	**Solved problems and examples of continuity**	**Mathematic 1**	**Explanation and presentation Model and lecture**	**Examination**

191. Course Evaluation	
1-Theoretical tests 30 **2- Daily tests 10** **3- Homework 10** **4- Final exam 50**	
192. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- **George B. Thomas, 2003. Calculus and Analytic Geometry.**
Main references (sources)	**1- Theories and problems in advanced calculus. 2008. Murray R. SPIEGEL. Eighth Arabic edition. International House for Cultural Investments. Egypt.** **2- 3000 solved problems in calculus. Elliot Mendelsohn. International Academy. Beirut, Lebanon.** **3- Dr. Ahmed Abdel-Aali. " Calculus " . The second part. 2003. New Book Publishing House.**
Recommended books and references (scientific journals, reports…)	**Iraqi academic scientific journals**
Electronic References, Websites	

Course Description Form

193.	Course Name:
Arabic Language	
194.	Course Code:
U023104	
195.	Semester / Year:
Second semester / first	
196.	Description Preparation Date:
26/2/2024	
197.	Available Attendance Forms:
Actual attendant	
198.	Number of Credit Hours (Total) / Number of Units (Total)

2 theoretical and total hours Number of units: 30 hrs	
199. Course administrator's name (mention all, if more than one name)	
Name: Assistant lecturer: Amer Musa Kazem Email: amermousak@mu.edu.iq	
200. Course Objectives	
Course Objectives	• **Teaching the student grammar and parsing, as well as rhetoric in the Holy Quran.**
201. Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

202. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	Rhetoric in the Holy Quran	A lecture	Quiz
2	2	Theoretical lecture	Interpretation of twenty verses	A lecture	Quiz
3	2	Theoretical lecture	Arabic / Grammar and parsing	A lecture	Quiz
4	2	Theoretical lecture	The subject and the predicate	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Copiers	A lecture	Quiz
7	2	Theoretical lecture	Imperfect verbs	A lecture	Quiz
8	2	Theoretical lecture	Effects	A lecture	Quiz
9	2	Theoretical lecture	Preparation	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Hamza and dictates	A lecture	Quiz
12	2	Theoretical lecture	Rules for writing ta'	A lecture	Quiz
13	2	Theoretical lecture	Ages of Arabic literature	A lecture	Quiz
14	2	Theoretical lecture	Old poetry	A lecture	Quiz
15	2	Theoretical lecture	Writing common mistakes	A lecture	Quiz

203. Co2urse Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
204. Learning and Teaching Resources	
Required textbooks (curricular books any)	Arabic language Rafid Sabbah
Main references (sources)	From methodological books, help books, the Internet, and scientific research
Recommended books and references (scientific journals, reports…)	Scientific journals in basic specializations
Electronic References, Websites	https://www.wuduh1.com/2023/10/books-arabic.html

Course description form for the second stage.

205. Course Name:	
Biochemistry	
206. Course Code:	
0C13201	
207. Semester / Year:	
Second semester / The second	
208. Description Preparation Date:	
26\2\2024	
209. Available Attendance Forms:	
Actual presence	
210. Number of Credit Hours (Total) / Number of Units (Total)	
theoretical 2 practical 3 units 3	
211. Course administrator's name (mention all, if more than one name)	
Name**: Professor Dr. Jassim Qasim Manati** Email : jasimiraqe@mu.edu.iq	
212. Course Objectives	
Course Objecti	• Introducing the student to the importance of biochemistry

	• Study of carbohydrates • Study of amino acids • Study of lipids • Study of nucleic acids

213. Teaching and Learning Strategies

Strategy	Audio methods (teaching explanation of the topic) Style of writing on the blackboard The method of direct dialogue between the teacher and the stude with the student's evaluation in class participation

214. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Theoretical lecture**	**Carbohydrates - their definition - their sections**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**Theoretical lecture**	**Monosaccharides**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2	**Theoretical lecture**	**Low polysaccharides**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2	**Theoretical lecture**	**Polysaccharides**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**Exam**	**Exam**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2	**Theoretical lecture**	**Amino acids - their divisions - their interactions**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2	**Theoretical lecture**	**Proteins - their**	**Explanation,**	**the exam, Quizzes,**

			composition, structure, and divisions	**presentation of model and lecture**	**Reports, and activities in class**
Eighth	2	**Theoretical lecture**	**Fatty acids - their divisions - their interactions**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**Theoretical lecture**	**Simple lipids - their structure - their divisions**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Tenth	2	**Theoretical lecture**	**Exam**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**Theoretical lecture**	**Compound and derived lipids - their composition - their divisions**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2	**Theoretical lecture**	**Nucleic acids, their importance**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Theoretical lecture**	**Its composition and sections**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
fourteent	2	**Theoretical lecture**	**Enzymes, their characteristics**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Fifteenth	2	**Theoretical lecture**	**Factors affecting it**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**

215. Course Evaluation

- Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

216. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Foundations of biochemistry Ali Al-Daoudi
Main references (sources)	Integrated biochemistry Hohn W. Pelley
Recommended books and references (scientific journals, reports…)	List of chemistry journals
Electronic Referenc Websites	https://www.chemistry1science.com/2018/08/2-pdf_44.html

Course Description Form

217. Course Name:	
Soil principles	
218. Course Code:	
0013201	
Semester / Year: 219.	
First / second	
220. Description Preparation Date:	
26/2/2024	
221. Available Attendance Forms:	
Actual presence	
222. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 2 practical , units 3	
223. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. raheem alwan halool Email: Rahim_alwan@mu.edu.iq	
224. Course Objectives	
The student gets to know soil science	• The student gets to know soil science • The student should classify the factors processes of soil formation

	• The student should separate the var factors in the formation of so • For the student to learn about how soi formed and developed • For the student to evaluate the different ty of soil

225. • The student should classify the factors and processes of soil formation

Strategy	1- Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

226. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	The student will be familiar with an introduction to soil science and the emergence and development of soils	Soil principles	Explanation, presentation of the model and lecture	the exam
The second	5	The student gets to know the types of factors and soil formation processes			

Third	5	The student gets to know the physical properties of soil	Soil principles	Explanation, presentation of the model and lecture	the exam
Fourth		The student gets to know the chemical properties of soil	Soil principles	Explanation, presentation of the model and lecture	the exam
Fifth		The student gets to know the biological characteristics of soil	Soil principles	Explanation, presentation of the model and lecture	the exam
Sixth		The student gets to know soil salinity	Soil principles	Explanation, presentation of the model and lecture	the exam
Seventh		The student will be familiar with the reclamation of saline soils	Soil principles	Explanation, presentation of the model and lecture	the exam
Eighth		The student	Soil principles	Explanation,	the

		gets to know the types of soil water		presentation of the model and lecture	exam
Ninth		The student gets to know soil colloids	Soil principles	Explanation, presentation of the model and lecture	the exam
Tenth		The student will learn about the effect of humidity on plants	Soil principles	Explanation, presentation of the model and lecture	the exam
Eleventh Twelfth	5	The student gets to know soil fertility For the student to recognize the most important reasons for low soil productivity	Soil principles	Explanation, presentation of the model and lecture	the exam the exam
thirteenth		The student will know how to feed plants	Soil principles	Explanation, presentation of the model	the exam

				and lecture	
Fourteenth		The student gets to know the classification of soils	Soil principles	Explanation, presentation of the model and lecture	the exam
Fifteenth		For the student to become familiar with educational administration	Sustainable development	Explanation, presentation of the model and lecture	the exam

227. Course Evaluation

1- Theoretical tests 25

2- Practical tests 15

3- Reports and studies 10

4- Final exam 50

228. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Introduction to Soil Sciences 2015 / A. Dr. Nour El-Din Shaw Ali
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals

Electronic References, Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

229. Course Name:
Principles of statistics
230. Course Code:
0C13202
231. Semester / Year:
First / second
232. Description Preparation Date:
1/9/2023
233. Available Attendance Forms:
Actual attendant
234. Number of Credit Hours (Total) / Number of Units (Total)
30 theoretical 45 practical , 3.5 unit
235. Course administrator's name (mention all, if more than one name)
Name: sadeq Hadi Hussein Email: Sadeq.hadi@mu.edu.iq
236. Course Objectives

Course Objectives	**- Introducing students to the principles, basics, and applications of statistics** **- Teaching students the importance of knowing the statistical standards applied in agricultural research**
237. Teaching and Learning Strategies	

Strategy	Active participation in answering questions. - Weekly assignments in order to practice applying the laws - Monthly tests

238. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Basics in statistics	1- A historical overview, definition, importance and applications of statistics	Explanation, presentation of the model and lecture	exam
2	5		2- Introducing statistical terminology and methods for obtaining random samples		
3	5		3- Tabular and graphical presentation 4- Concentration metrics		
4	5		5- How to make a		

5			**frequency distribution table**		
6			**6- Measures of relative dispersion**		
7			**7- The relationship between the arithmetic mean, median, and mode**		
8			**8- T-test and F-test**		
9			**9- Simple regression**		
10			**10- Correlation**		
11			**11- Probability distributions**		
12			**12- Normal distribution**		
			13- Analysis of variance		

13					

239. Course Evaluation

1- Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

240. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Statistics - Khashi Muhammad Al-Rawi
Main references (sources)	Principles of Statistics - Ahmed Abdel Samie 2008
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

241. Course Name:
Basis of microbiology
242. Course Code:
0013202
243. Semester / Year:

First semester / second

244. Description Preparation Date:

14/2/2024

245. Available Attendance Forms:

Actual Attendance

246. Number of Credit Hours (Total) / Number of Units (Total)

30 theoretical 60 practical = 90 hrs, 3 unit

247. Course administrator's name (mention all, if more than one name)

Name: Assistant Professor Dr. Dhifaf jabbar shamran
Email: dhifaf15@mu.edu.iq

248. Course Objectives

Course Objectives	*** Introducing the student to the nature of microbiology** *** Different types of microorganisms** *** The use of microorganisms in the agricultu field**

249. Teaching and Learning Strategies

Strategy	A- Cognitive objectives * Enables the student to understand the nature of microorganism * Enabling the student to distinguish between different types of microorganisms * Enabling the student to focus on the vital activities of all species * Enabling the student to know the importance of microorganisms in the agricultural field B- Skills goals - Development of bacteria and fungi - Isolate and purify it - Testing its sensitivity to antibiotics

250. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First		Memorizatio understandi practical application	A historical overview of microbiology, definition o microbiology, its types, an its relationship to other sciences	Lecture and discussion	Oral exams a rapid exam
Second			Bacteria, their shapes and composition		
Third			Different metabolic activit of bacteria		
Forth			Fungi, their general characteristics and types		
Fifth			Different metabolic activit of fungi and their classification		
Sixth			Monthly exam		
Seventh			Viruses, their definition, structure and types		
Eighth			Types of virus replication		
Ninth			Algae definition, structure and type		
Tenth			Biofertilizers, their types a importance		
11			Second part of biofertilize		
12			Second monthly exam		
13			Protozoa , its definition, structure and sections		
14			General Review		
15			Comprehensive exam		

251. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

252. Learning and Teaching Resources

Required textbooks (curricular books, any)	General microbiology

Main references (sources)	Books related to the subject a scientific research
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Arabic articles published academic and professional bodies

Course Description Form

253. Course Name:	
Vegetable production	
254. Course Code:	
0C13203	
255. Semester / Year:	
FIRST semester / The second	
256. Description Preparation Date:	
26\2\2024	
257. Available Attendance Forms:	
Actual presence	
258. Number of Credit Hours (Total) / Number of Units (Total)	
theoretical 2 practical 2 units 3	
259. Course administrator's name (mention all, if more than one name)	
Name: Assistant prof. aman hameed jaber Email :amanhameed@mu.edu.iq	
260. Course Objectives	
Course Objecti	**• The student gets to know the types of vegetables** **• The student should classify climate factors and their relationship to vegetable productio** **• The student should detail the benefits and harms of climatic factors such as temperatu wind, and frost** **• The student will learn about increased production and its causes** **• To establish an annual agricultural cycle for production**
261. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method

	3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

262. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	**Vegetable production**	**Introduction, definition, original homeland**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**Vegetable production**	**Classification of vegetable crops**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2	**Vegetable production**	**Divide vegetables**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2	**Vegetable production**	**Vegetable crop service operations**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**Vegetable production**	**Horticultural facility and tools needed for growing vegetables**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2	**Vegetable production**	**Vegetable reproduction: sexual reproduction and asexual reproduction**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2	**Vegetable production**	**Irrigation of vegetable crops**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**

Eighth	2	**Vegetable production**	**Fertilizing vegetable crops**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**Vegetable production**	**Physiological diseases of vegetables**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**

tenth	2	**Vegetable production**	**Organic Agriculture**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**Vegetable production**	**Important vegetable crops in Iraq: Solanaceae family: tomato, potato**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2	**Vegetable production**	**Pepper, eggplant**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Vegetable production**	**Cucurbita family: cucumber and squash**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
fourteent	2				
Fifteenth	2				

263. Course Evaluation

1- Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

264. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Vegetable Production, Part One, written by Adnan Nass Matloob, Ezz El-Din Sultan, and Karim Saleh
Main references (sources)	

Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Internet network**

Course Description Form

265. Course Name:
Applications in computers
266. Course Code:
U013201
267. Semester / Year:
First / second
268. Description Preparation Date:
1/9/2023
269. Available Attendance Forms:
Actual presence
270. Number of Credit Hours (Total) / Number of Units (Total)
2 /2
271. Course administrator's name (mention all, if more than one name)
Name: Dr. Karrar Hameed Abdulkareem Email: khak9784@mu.edu.iq
272. Course Objectives

Course Objecti	• **The student gets to know Microsoft PowerPoint** • **The student should know advantages of Microsoft PowerPoint in real life.** • **The student should apply many examples that relative to agriculture sector as well as other sectors.**

273. Teaching and Learning Strategies

Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

274. Course Structure

Week	Hours	Required Learning	Unit or subject	Learning	Evaluati

		Outcomes	name	method	on method
First	2	**Introduction to Micros PowerPoint**	**Microsoft PowerPoint**	**Explanation, presentation of model and lecture**	**Exam**
Second	2	**Tabs and groups**	**Microsoft PowerPoint**	**Explanation, presentation of model and lecture**	**Exam**
Third	2	**Tabs and groups**	**Microsoft PowerPoint**	**Explanation, presentation of model and lecture**	**Exam**
Fourth	2	**Practical Example**	**Microsoft PowerPoint**	**Practical session**	**Exam**
Fifth	2	**Practical Example**	**Microsoft PowerPoin**	**Practical session**	**Exam**
Sixth	2	**Tables**	**Microsoft PowerPoin**	**Explanation, presentation of model and lecture**	**Exam**
Seventh	2	**Deals with movies**	**Microsoft PowerPoin**	**Explanation, presentation of model and lecture**	**Exam**
Eighth	2	**Deals with movies**	**Microsoft PowerPoin**	**Explanation, presentation of model and lecture**	**Exam**
Ninth	2	**Shapes, smartart, and charts**	**Microsoft PowerPoin**	**Explanation, presentation of model and lecture**	**Exam**
Tenth	2	**Practical Example**	**Microsoft PowerPoin**	**Practical session**	**Exam**
Eleventh	2	**Practical Example**	**Microsoft PowerPoin**	**Practical session**	**Exam**
Twelfth	2	**Shapes, smartart, and charts**	**Microsoft PowerPoin**	**Explanation, presentation of model and lecture**	**Exam**
Thirteent	2	**Shapes, smartart, and charts**	**Microsoft PowerPoin**	**Explanation, presentation of model and lecture**	**Exam**
fourteent	2	**Practical Example**	**Microsoft PowerPoin**	**Practical session**	**Exam**
Fifteenth	2	**Practical Example**	**Microsoft PowerPoin**	**Practical session**	**Exam**

275. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

276. Learning and Teaching Resources

Required textbooks (curricu books, if any)	

Main references (sources)	1- Microsoft Excel 2016 Step by Step 1st Edition by Curtis Frye 2- Microsoft Excel 2016 prepared by Muhammad Malik
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	https://support.microsoft.com/en-gb/office/introduction-t excel-starter-601794a9-b73d-4d04-b2d4-eed4c40f98be

Course Description Form

277. Course Name:
Agricultural machinery and equipment
278. Course Code:
0C13204
279. Semester / Year: 2023-2024
First / second
280. Description Preparation Date:
1-9-2023
281. Available Attendance Forms:
Attended
282. Number of Credit Hours (60) / Number of Units (3)
60 hrs / 3 units
283. Course administrator's name (mention all, if more than one name)
Name: JAWAD KADHIM AL ARIDHEE Email: jawadaridhee@mu.edu.iq
284. Course Objectives

Course Objectives	is machinery used in farming or other agriculture. There are many types of such equipment, from hand tools and power tools to tractors and the countless kinds of farm implements that they tow or operate. Diverse arrays of equipment are used in both organic and nonorganic farming. Especially since the advent of mechanized agriculture, agricultural machinery is an indispensable part of how the world is fed

285. Teaching and Learning Strategies

Strategy	

286. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Classification of tractors , Mechanical transmission methods		Theoretical + practical lecture	test
2	4	Internal combustion engine parts		Theoretical + practical lecture	test
3	4	Four – stroke cycle& Two – stroke cycle		Theoretical + practical lecture	test
4	4	Timer device		Theoretical + practical lecture	test
5	4	Clutch Device		Theoretical + practical lecture	test
6	4	Gearbox and Transmission devices		Theoretical + practical lecture	test
7	4	Fuel System		Theoretical + practical lecture	test
8	4	Cooling System		Theoretical + practical lecture	test
9	4	Lubrication System		Theoretical + practical	test

				lecture	
10	4	Hydraulic devices. Power take - off shaft		Theoretical + practical lecture	test
11	4	Soil preparation equipment		Theoretical + practical lecture	test
12	4	Control equipment - Spraying equipment		Theoretical + practical lecture	test
13	4	Fogging equipment		Theoretical + practical lecture	test
14	4	Sprinkler calibration		Theoretical + practical lecture	test
15	4	Maintenance of control equipment		Theoretical + practical lecture	test

287. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

288. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Agricultural machinery
Main references (sources)	Basic Farm Machinery .J.M.shippen,C.R.E and C.H.Clover
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Dscription Form

289. Course Name
Soil, water and plant analysis
290. Course Code:
0023201
Semester / Year: 291.
Second / second
292. Description Preparation Date:
26/2/2024
293. Available Attendance Forms:
Actual presence
294. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2 practical , units 2
295. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. raheem alwan halool Email: **Rahim_alwan@mu.edu.iq**
296. Course Objectives

Course Objectives	For the student to know the types of analytical methods • The student learns how to analysis water , soil and plant • The student should evaluate the scientific reality to maintain analytical methods •

297. Teaching and Learning Strategies	
Strategy	1- Explanation and clarification

	2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

298. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	The student gets to know introduction about water , soil plant analytical	ter , soil and nt analytical	Explanation, presentation of the model and lecture	the exam
The second	5	is for the student to know analytical of water			
Third	5	The student learns about soil analytical	Water , soil plant analyti	Explanation, presentation of the	the exam

				model and lecture	
Fourth	5	The student gets to know plant analytical	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Fifth	5	: The student learns about methods of soil samples	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Sixth	5	: The student learns about methods of plant samples	Water , soil and plant analytical	Explanation, presentation of the model and lecture	the exam
Seventh	5	: The student gets to know the methods of water samples	Water , soil plant analyti	Explanation, presentati	the exam

		methods		on of the model and lecture	
Eighth	5	The student gets to know the quantitative and volumetric methods	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Ninth	5	The student gets to know the quantitative and weighing methods	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Tenth	5	: The student will learn about electrical of a Analytical methods	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Eleventh		The student gets to know	Water , soil plant analyti	Explanation,	the exam the exam

Twelfth	5	About analytical of spectroscopy The student gets to know Atomic emission methods		presentation of the model and lecture	
thirteenth	5	: The student knows how the Atomic absorption methods	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Fourteenth	5	: The student gets to know Metal analysis methods	Water , soil plant analyti	Explanation, presentation of the model and lecture	the exam
Fifteenth	5	The student gets to know the types of X-ray analysis methods	Water , soil plant analyti	Explanation, presentati	the exam

				on of the model and lecture	

299. Course Evaluation
Theoretical tests 25 2- Practical tests 15 3- Reports and studies 10 4- Final exam 50

300. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals
Electronic References, Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

301. Course Name:
Fundamentals of plant protection
302. Course Code:
0C23201
303. Semester / Year:
Second semester / The second
304. Description Preparation Date:
1\9\2023
305. Available Attendance Forms:
Actual presence
306. Number of Credit Hours (Total) / Number of Units (Total)

theoretical 30 hrs practical 45 hrs units 3.5

307. Course administrator's name (mention all, if more than one name)

Name: Assistant prof. Dr. Saad Manea
Email: alifj80@mu.edu.iq

308. Course Objectives

Course Objecti	**Enabling students to obtain knowledge and understanding of the intellectual and appl framework in insect principles in general** **• Enabling students to obtain knowledge and understanding of insecticide requirements accordance with international standards.** **• Introducing students to modern techniques in the basis of protection from insects a diseases through showing films, scientific research, and methods of diagnosing insects.**

309. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

310. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	**The taxonomic position of insects and its relationship to the arthropod phylum**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	5	**Its importance, benefits and harms**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	5	**Its spread and the reasons for its success**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**

the fourth	5	**Methods of insect reproduction**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	5	**Insect feeding methods**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	5	**Examples of the most important economic insects in Iraq**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	5	**Environmental factors affecting the life and activity of insects**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eighth	5		Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	5	**Ways to combat harmful insects**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**

tenth	5	**The nature and damage of non-insect pests (rodents and birds)**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	5	**The economic importance of plant diseases - definitions and terms**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	5	**Parasitic plant pathogens (biological)**	Fundamentals of plant protection	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**

311. Course Evaluation	
5- Theoretical tests	25
6- Practical tests	15
7- Reports and studies	10
8- Final exam	50

312. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	-Required readings: -Basic texts -Course books -Other
Main references (sources)	Special requirements (including, for example, worksho periodicals, software, and websites)
Recommended books and references (scientific journals, reports…)	Social services (including, for example, guest lectur vocational training, and field studies) Iraqi academic scientific journals
Electronic Referenc Websites	**Internet network**

Course Description Form

313. Course Name:
Soil environment and weather conditions
314. Course Code:
0023202
315. Semester / Year:
Second / second
316. Description Preparation Date:
26\2\2024
317. Available Attendance Forms:
Actual presence
318. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2 practical units 3
319. Course administrator's name (mention all, if more than one name)

Name: Prof. Dr. Abdullah Karim Jabbar
Email: karrm74@mu.edu.iq-abdallah

320. Course Objectives

Course Objecti

- **• The student gets to know environmental science**
- **• The student should classify climate factors and their relationship to soil**
- **• The student should detail the benefits and harms of climatic factors such as temperature, wind, and frost**
- **• The student should know about pollution and its causes**
- **• The student will evaluate desertification and global warming.....**

321. Teaching and Learning Strategies

Strategy

1-Explanation and clarification
2- Lecture method
3- Student groups
4- Practical lessons
5- Scientific trips
6 - Self-learning method

322. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**The student gets introduction to ecology and ecosystem**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**The student gets to know types of ecosystems and s factors**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
the third	2	**For the student to learn ab the importance of biologi water and the division of pla according to their need water, rain, and th effectiveness**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	2	**The student gets to kn condensation and frost**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**The student gets to know temperature and thermal ra of plants and the effect of h**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**

		stress			
Sixth	2	**The student will be famil with the nature of therı stress, the effect of heat vegetation, thermal synchro and ambient temperature**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**The student gets to know li and the biological effects of lig**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**The student gets to know point of photocompensation a the effect of light on the sha and structure of plants**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**The student will be famil with humidity and the decre in the degree of saturation**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	2	**The student will learn about effect of humidity on plants**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	2	**For the student to get to know Winds, their types, harms a benefits to plants**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	2	**The student gets to know most important contempor environmental issues**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**The student will be famil with pollution and interrelated effects**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	2	**The student will be famil with the phenomenon inverted gradient and glo warming**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	2	**The student gets to kn desertification, its types a causes**	**Soil environment weather conditions**	**Explanation, presentation of model and lecture**	**the exam**

323. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

324. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Fundamentals of Agricultural Climatology. 2015. Salam H Ahmed Al-Jubouri. Amman. Jordan. 2- Plant ecology. 1989. Dr. Majeed Rashid Al-Hilli and Hikmat Abbas Al-Ani. Dar Al-Kutub for Printing and Publishi Iraq. University of Al Mosul.
Main references (sources)	Environment and problems of pollution. 2017. Muhamm Hassan Awad and Hassan Ahmed Shehata. Dar Taiba Publishing and Distribution. Cairo. Egypt.
Recommended books and	Iraqi academic scientific journals

references (scientific journals, reports…)	
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

325. Course Name:
Agricultural extension
326. Course Code:
0C23202
327. Semester / Year:
Second semester / The second
328. Description Preparation Date:
26\2\2024
329. Available Attendance Forms:
Actual presence
330. Number of Credit Hours (Total) / Number of Units (Total)
theoretical 2 practical units 2
331. Course administrator's name (mention all, if more than one name)
Name: Assistant prof. Mustafa Abd Manshood Email :**mustafa.manshood@mu.edu.iq**
332. Course Objectives

Course Objecti	**• Teaching and introducing students to the most important link in the agricultural extens system, which is the agricultural extension worker and his role in transferring scient material from scientific research departments and delivering it to farms with some ease a guidance.** **• Teaching students the art of adopting positive ideas in the field of agriculture**

333. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method

	3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

334. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2		**About agricultural extension**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2		**Types of extension training**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2		**Contact method**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2		**Creation and spread of modern innovations**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2		**Leadership**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2		**Planning extension programs**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2		**Agricultural extension methods and extension methods**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**

Eighth	2		**Agricultural extension philosophy**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2		**Education and teaching**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Tenth	2		**The importance of using modern irrigation methods and their economic impacts**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2		**The role of agricultural extension in improving archaeological areas**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2		**Water crisis**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2				
fourteent	2				
Fifteenth	2				

335. Course Evaluation

1-Theoretical tests, Quizzes, Reports, and Class's Activities	50
4- Final exam	50

336. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Principles of agricultural extension - Abdullah Al-Samarrai
Main references (sources)	1-Planning extension programs 1992 - Abdullah Al-Samarrai 2- Agricultural Extension Science 1990- Adnan Hussein Al-Ja
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**Internet network**

Course Description Form

337. Course Name:
Lands leveling and grading
338. Course Code:
0023203
339. Semester / Year
Second/ second
340. Description Preparation Date:
1/9/2023
341. Available Attendance Forms:
Attended
342. Number of Credit Hours / Number of Units
60 hrs / 3 units
343. Course administrator's name (mention all, if more than one name)
Name: JAWAD KADHIM AL ARIDHEE Email: jawadaridhee@mu.edu.iq

344. Course Objectives	
Course Objectives	• Increasing the production of agricultural crops in quantity and quality due to the distribution of water in the field at approximately one depth • Ease of irrigation, as the water is distributed evenly throughou the field. This means reducing the amount of water required b the irrigation process and reducing the effort and time required for this process, unlike uneven lands that require a large amou of irrigation water in addition to the greater time and effort to d

345. Teaching and Learning Strategies	
Strategy	1- Create a slope that provides an appropriate amount of water 2- Leveling the field in the best way using the least possible amount of soil transpor for the purpose of leveling

346. Course Structure

Week	Hours	Required Learning	Unit or	Learning	Evaluation

		Outcomes	subject name	method	method
1	4	Definition of the Lands leveling and grading		Theoretical + practical lecture	test
2	4	Types of leveling - application requirements		Theoretical + practical lecture	test
3	4	the factors that must be followed before starting work to level and modify: soil factors, environmental factors, plants, and human factors		Theoretical + practical lecture	test
4	4	Topographic variation: its relationship to of level - estimation methods - direct methods - indirect methods		Theoretical + practical lecture	test
5	4	Land leveling without slope		Theoretical + practical lecture	test
6	4	Field works - implementation methods - work stages - calculations and estimation		Theoretical + practical lecture	test
7	4	the leveling ground with one slope		Theoretical + practical lecture	test
8	4	the leveling ground with two slope		Theoretical + practical lecture	test
9	4	Calculations, estimates and evaluation		Theoretical + practical lecture	test
10	4	Selection of machines		Theoretical + practical lecture	test
11	4	Types of machines - testing standards - efficiency and utilization of machines		Theoretical + practical lecture	test
12	4	Laser leveling		Theoretical + practical lecture	test
13	4	Make a leveling plan		Theoretical + practical lecture	test
14	4	Times for leveling - and ways to succeed		Theoretical + practical lecture	test

347. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
348. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Surveying**
Main references (sources)	Basic Farm Machinery .J.M.shippen,C.R.E and C.H.Clover
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

349. Course Name:	
Plant Physiology	
350. Course Code:	
0C23203	
351. Semester / Year:	
Second / second	
352. Description Preparation Date:	
26\2\2024	
353. Available Attendance Forms:	
Actual presence	
354. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 3 practical units 3.5	
355. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Falah Hasan Issa Email: flah70-hasan@mu.edu.iq	
356. Course Objectives	
Course Objecti	• **The student gets to know Plant Physiology** • **The student should classify of cells** • **The student should detail the benefits and harms of Metabolism , Respiration ,Transpiration** • **The student should know about plant hormones** •

357. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

358. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**Components of a plant cell**	**Plant Physiology**	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**Osmosis**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**Past and active absorption**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**Photosynthesis**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**Respiration**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
Sixth	5	**Growth plant Hrmons**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
Seventh	5	**Inhibitors plant Hermon's**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
Eighth	5	**Enzymes**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
Ninth	5	**Transpiration**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**Guttation and blooding**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	5	**Colloidal solutions**	Plant Physiology	**Explanation, presentation of**	**the exam**

				model and lecture	
Twelfth	5	**Vernilazation**	Plant Physiology	**Explanation, presentation of model and lecture**	**the exam**

359. Course Evaluation	
1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

360. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	1- Plant Physiology, P art One and Two, Dr. Abdel Azim 2-Plant Physiology . 2000. Dr.Mouaid Alyonis
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Plant Physiology Journal** .

Course Description Form

361. Course Name:
English Language
362. Course Code:
U023201
363. Semester / Year:
Second semester / The second
364. Description Preparation Date:
26\2\2024
365. Available Attendance Forms:
Actual presence
366. Number of Credit Hours (Total) / Number of Units (Total)
theoretical 2 practical units 1

367. Course administrator's name (mention all, if more than one name)

Name: Assistant Professor Dr. Ahmed Merza Abood
Email :ahmedme@mu.edu.iq

368. Course Objectives

Course Objecti	**- Teaching students, the basic concepts related to access to the simple basics of introduction to the English language for students of the College of Agriculture.** **- The student gets to know the concept of the English language.** **- Enabling students to know how to deal with the English language**

369. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

370. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Getting to know you:** **- Tenses** **- Questions** **- Using a bilingual dictionary** **- Social expressions 1**	**1**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**The way we live:** **- Present tenses** **- Have/have got** **- Collocation-daily life** **- Making conversation**	**2**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2	**It all went wrong:** **- Past tenses** **- Word formation** **- Time expressions**	**3**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and**

					activities in class
the fourth	2	**Let's go shopping:** **- Much/many** **- Some/any** **- A few, a little, a lot of** **- Articles** **- Shopping, prices**	**4**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**What do you want to do?** **- Verb patterns 1** **- future forms** **- Hot verbs** **- How are you feel?**	**5**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2	**Tell me! What's it like?** **- What …like?** **- Comparatives and superlatives** **- Synonyms and antonyms** **- Directions**	**6**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2	**Fame:** **- Present perfect** **- For, since** **- Adverbs, word pairs** **- Short answers**	**7**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eighth	2	**Do's and don'ts:** **- Have(got) to** **- Should/must** **- Words that go together** **- At the doctor's**	**8**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**Going places:** **- Time clauses** **- If** **- Hot verbs** **- In a hotel**	**9**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Tenth	2	**Scared to death:** **- Verb patterns 2** **- Manage to, used to** **- Ed/ing adjectives** **- Exclamations**	**10**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**Things that changed the world:** **- Passives** **- Verbs and nouns that go together** **- Notices**	**11**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2	**Dreams and reality:** **- Second conditional** **- Might** **- Phrasal verbs** **- Social expressions**	**12**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Earning a living:** **- Present perfect continuous** **- Word formation**	**13**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and**

		- Adverbs **- Telephoning**			**activities in class**
fourteent	2	**Family ties:** **- Past perfect** **- Reported statements** **- Saying goodbye**	**14**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Fifteenth	2	**Reviewing**	**15**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**

371. Course Evaluation	
1-Theoretical tests	35
2- Quizzes, Reports, and Class's Activities	15
4- Final exam	50

372. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Pre-Intermediate Student's Book: New Headway Plus (John a Liz Soars) Oxford University Press
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**Internet network**

Course Description Form

373. Course Name:
Computer applications 4
374. Course Code:
U023202
375. Semester / Year:
Second / Second
376. Description Preparation Date:
1/9/2023
377. Available Attendance Forms:
Actual presence
378. Number of Credit Hours (Total) / Number of Units (Total)

2 /2

379. Course administrator's name (mention all, if more than one name)

Name: Dr. Karrar Hameed Abdulkareem
Email: khak9784@mu.edu.iq

380. Course Objectives

Course Objecti	• **The student gets to know Microsoft excel** • **The student should know advantages of Microsoft excel in real life.** • **The student should apply many examples that relative to agriculture sector as well as other sectors.**

381. Teaching and Learning Strategies

Strategy	1-Explanation and clarification. 2- Practical lessons. 3- Self-learning method.

382. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Introduction to Microsoft Excel**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
second	2	**Tabs and groups**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
third	2	**Workbooks and sheets**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
fourth	2	**Practical Example**	**Microsoft Excel**	**Practical session**	**the exam**
Fifth	2	**Practical Example**	**Microsoft Excel**	**Practical session**	**the exam**
Sixth	2	**Workbooks design**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**Fundamentals of data entry**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**Fundamentals of data entry**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**Fundamentals of data entry**	**Microsoft Excel**	**Explanation, presentation of**	**the exam**

				model and lecture	
Tenth	2	**Practical Example**	**Microsoft Excel**	**Practical session**	**the exam**
Eleventh	2	**Practical Example**	**Microsoft Excel**	**Practical session**	**the exam**
Twelfth	2	**Tables**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**Charts**	**Microsoft Excel**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	2	**Practical Example**	**Microsoft Excel**	**Practical session**	**the exam**
Fifteenth	2	**Practical Example**	**Microsoft Excel**	**Practical session**	**the exam**

383. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

384. Learning and Teaching Resources

Required textbooks (curricu books, if any)	
Main references (sources)	1- Microsoft Excel 2016 Step by Step 1st Edition by Curtis Frye 2- Microsoft Excel 2016 prepared by Muhammad Malik
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	https://support.microsoft.com/en-gb/office/introduction-t excel-starter-601794a9-b73d-4d04-b2d4-eed4c40f98be

Course Description Form

385. Course Name:

Soil physics

386. Course Code:

0013301

387. Semester / Year:

First / THIRD

388. Description Preparation Date:

26\2\2024

389. Available Attendance Forms:

Actual presence

390. Number of Credit Hours (Total) / Number of Units (Total)

2 theoretical 2 practical units 3

391. Course administrator's name (mention all, if more than one name)

Name: Dr. AULA HUSSEIN ALI
Email: Aula.alobeidi@mu.edu.iq

392. Course Objectives

Course Objecti	**1- Researches the study of soil physics and the physical properties of soil** **2- Study how to measure the physical properties of soil** **3- Applying measurements of physical properties to solve scientific problems related agriculture and the environment** **4- Understanding the relationship between physical soil properties** **5- Knowing the movement of water in the soil and the flow of water in saturated and unsaturated soils.**

393. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

394. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	**ntroduction and definition soil science, soil physics a some related relationships**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	**Physical soil properties, s texture, particle s distribution, and Stock's law**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
the third	4	**The specific area of soil a methods for determining physically and chemically**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**

the fourth	4	**Soil Structure: its definiti importance, and how to study**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	**Methods of studying soil structure and evidence of soil structure**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	**Stability of soil aggrega methods of studying them, a factors affecting the format of aggregates**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	**Soil water and general wa properties, soil air, air capac and gas exchange in the soil**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	**Water properties related porous media (soil), soil wa energy and methods expressing and measuring it**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	4	**Soil temperature, s temperature, and heat flow the soil**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	**Water flow in saturated so and water flow in unsatura soils**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	**Water infiltration in s methods for measuring it a equations**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	**rrigation and drainage cha the physical properties surface soil**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	**Water balance and ene balance in the field**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	4	**Evaluation of the water bala equation, water consumpti evapotranspiration**	**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4		**Soil physics**	**Explanation, presentation of model and lecture**	**the exam**

395. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

396. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Soil Physics, written by Dr. Hisham Mahmoud Hassan 200 2- Basics of soil physics, translation. Mahdi Ibrahim Odeh 19
Main references (sources)	Basics of soil physics, translation. Mahdi Ibrahim Odeh 1990
Recommended books and references (scientific	Iraqi academic scientific journals

journals, reports…)	
Electronic Referenc Websites	**Soil physics**

Course Description Form

397. Course Name:	
Soil Chemistry	
398. Course Code:	
0013302	
399. Semester / Year:	
First Semester / Third	
400. Description Preparation Date:	
27/2/2024	
401. Available Attendance Forms:	
attend	
402. Number of Credit Hours (Total) / Number of Units (Total)	
hrs	3 units
403. Course administrator's name (mention all, if more than one name)	
Name: Assistant Professor Dr. bashar mezher jader Email: bashar_mezher@mu.edu.iq	
404. Course Objectives	
Course Objectives	**The soil chemistry course aims to explain the principles used in stud the chemical composition of soil. During this course, the stude introduced to all the chemical properties of soil and how to estimate calculate them practically and in the field. During this course chemical properties of soil are linked to other branches of soil scienc**
405. Teaching and Learning Strategies	
Strategy	• Make the learner active and effective in educational situations. • Teach students to respect different opinions and value others • Benefit from other people's ideas and information.

406. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	The importance	Soil	**Explanation, presentat**	Exam

		studying soil chemistry,	chemist	**of the model and lectur**	
the second	5	Ion exchar equations, physicochemical equations	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
the third	5	chemical equatio soil anion exchar capacity	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
the fourth	5	Solubility balar in soil	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Fifth	5	Carbonate equilibrium, CC H2O syste CaCO3-H2O-CO2 system in soil	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Sixth	5	Phosphorus balan ionization phosphorus in so phosphorus reactions	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Seventh	5	Chemical potent of ions in the s system - s solution	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Eighth	5	phosphorus dissolution Soil acidity a alkalinity	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Ninth	5	curves in Al2O3-Fe2O3-CaO-P2O5-H2O system	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Tenth	5	the importance studying the degr of soil reaction	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Eleventh	5	sources of acidity the soil, methods measuring acid and alkalinity	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Twelfth	5	effect of the degr of reaction on cation exchar	Soil chemist	**Explanation, presentat of the model and lectur**	Exam

		capacity.			
Thirteenth	5	Equilibrium curv soil bufferi acidity	Soil chemist	**Explanation, presentat of the model and lectur**	Exam
Fourteenth	5	alkalinity of soils dry and semi-a areas, calcareoussoils, a gypsum soils.	Soil chemist	**Explanation, presentat of the model and lectur**	Exam

407. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
408. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Soil chemistry
Main references (sources)	Books related to the subject and scientific research
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://onlinelibrary.wiley.com/doi/full/10.1002/9781119300762.wsts0025

Course Description Form

409. Course Name:
Soil fertility
410. Course Code:
0013303
411. Semester / Year:
First / Third
412. Description Preparation Date:
27\2\2024
413. Available Attendance Forms:
Actual presence
414. Number of Credit Hours (Total) / Number of Units (Total)
60 hrs units 3
415. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Raheem alwan halool Email: Rahim_alwan@mu.edu.iq

416. Course Objectives

Course Objecti	• **The student gets to know the science of soil fertility** • **The student should classify the types of elements and their importance to plants** • **The student should detail the factors affecting nutrient readiness** • **The student will be familiar with soil fertility evaluation** • **The student should evaluate the soil elements according to their importance plants**

417. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

418. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**The student gets to know growth and the factors affecting it**	**Fertilizer technology**	**Explanation, presentation the model a lecture**	**the exam**
the secon	5	**The student gets to know the types nutrients**	**Fertilizer technology**	**Explanation, presentation the model a lecture**	**the exam**
the third	5	**The student recognizes the movement a absorption of elements in the soil**	**Fertilizer technology**	**Explanation, presentation the model a lecture**	**the exam**
the fourth	5	**The student gets to know the types elements in the soil**	**Fertilizer technology**	**Explanation, presentation the model a lecture**	**the exam**
Fifth	5	**The student gets to know the necess elements**	**Fertilizer technology**	**Explanation, presentation the model a lecture**	**the exam**
Sixth	5	**The student gets to know the ma elements**	**Fertilizer technology**	**Explanation, presentation the model a**	**the exam**

				lecture	
Seventh	5	The student gets to know the smal elements	Fertilizer technology	Explanation, presentation the model a lecture	the exam
Eighth	5	The student gets to know the useful a encouraging elements for growth	Fertilizer technology	Explanation, presentation the model a lecture	the exam
Ninth	5	For the student to recognize the distinct between elements	Fertilizer technology	Explanation, presentation the model a lecture	the exam
The tenth	5	For the student to get to know Factors affecting the readiness elements	Fertilizer technology	Explanation, presentation the model a lecture	the exam
Eleventh	5	The student gets to know nitrogen and factors	Fertilizer technology	Explanation, presentation the model a lecture	the exam
Twelfth	5	The student gets to know phosphorus a potassium and their factors	Fertilizer technology	Explanation, presentation the model a lecture	the exam
Thirteent	5	The student gets to know sulfur, calciu magnesium, and trace elements	Fertilizer technology	Explanation, presentation the model a lecture	the exam
fourteent	5	The student will be familiar with evaluation of soil fertility	Fertilizer technology	Explanation, presentation the model a lecture	the exam
Fifteenth	5	The student will be familiar with organic matter	Fertilizer technology	Explanation, presentation the model a lecture	the exam

419. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

420. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Soil fertility 2014/a. Dr. Nour El-Din Shawky Ali
Main references (sources)	Fertilizer technologies and uses, 2012, Prof. Dr. Nour El-I Shawqi Ali
Recommended books and references (scientific	Iraqi academic scientific journals

journals, reports…)	
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

421. Course Name:
Irrigation
422. Course Code:
0013304
423. Semester / Year:
First semester / THIRD
424. Description Preparation Date:
1/9/2023
425. Available Attendance Forms:
Actual presence
426. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2 practical units 3
427. Course administrator's name (mention all, if more than one name)
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq
428. Course Objectives

Course Objecti	**1-It discusses irrigation, the science of irrigation, the tasks of each of them, the sources irrigation, methods of controlling it, and exploiting water resources** **2- Researches how to design, plan and implement irrigation facilities** **3-Studies how to calculate plant water needs and water consumption.** **4- Apply and calculate irrigation efficiency, irrigation interval, and irrigation water depth** **5-Study measuring water using different methods** **6-Knowledge of traditional irrigation methods and modern irrigation methods and difference between them.**

429. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method

	3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

430. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	The concept of irrigation, irrigatio ancient and modern times	Irrigation	Explanation, presentation of model and lecture	the exam
the secon	4	Irrigation water sources, irriga water quality	Irrigation	Explanation, presentation of model and lecture	the exam
the third	4	Soil physical properties associa with irrigation	Irrigation	Explanation, presentation of model and lecture	the exam
the fourth	4	The relationship of water with s soil moisture constants, movemen water in the soil, water flow	Irrigation	Explanation, presentation of model and lecture	the exam
Fifth	4	Water measurement	Irrigation	Explanation, presentation of model and lecture	the exam
Sixth	4	Plant water consumption	Irrigation	Explanation, presentation of model and lecture	the exam
Seventh	4	Water requirements and irriga scheduling	Irrigation	Explanation, presentation of model and lecture	the exam
Eighth	4	Transport and distribution irrigation water, movement of wa in pipes and open channels	Irrigation	Explanation, presentation of model and lecture	the exam
Ninth	4	Design of soil and lined irriga channels	Irrigation	Explanation, presentation of model and lecture	the exam
The tenth	4	Efficiency, adequacy and consiste of irrigation	Irrigation	Explanation, presentation of model and lecture	the exam
Eleventh	4	Traditional irrigation methods	Irrigation	Explanation, presentation of model and lecture	the exam
Twelfth	4	Modern irrigation methods	Irrigation	Explanation, presentation of model and lecture	the exam
Thirteent	4	Modern irrigation methods	Irrigation	Explanation,	the exam

		rationalization of water use		**presentation of model and lecture**	
fourteent	4	**Pumping water and how to calcu pump capacity**	**Irrigation**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4		**Irrigation**	**Explanation, presentation of model and lecture**	**the exam**

431. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

432. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1-Irrigation, its basics and applications, written by Dr. Nabil Ibrahim Al-Tayef and Dr. Issam Khudair Hamza Al-Hadithi 1988 Ministry of Higher Education and Scientific Research - University of Baghdad. 2-Irrigation and drainage, written by Dr. Laith Khalil Ismail 2000 Ministry of Higher Education and Scientific Research - University of Mosul 3- Modern irrigation technologies and other topics in the wa issue, written by Dr. Issam Khudair Al-Hadithi, Dr. Ahm Madloul Al-Kubaisi, and Dr. Yas Khudair Hamza Al-Hadit 2010, Ministry of Higher Education and Scientific Researcl Anbar University
Main references (sources)	1- drainage (investigations, designs, implementation and maintenance). Dr. Mohsen Muhareb Awad Al-Lami and Dr. Al Saleh Abdul-Jabbar Al-Janabi. Iraq . Ministry of Higher Education and Scientific Research. University of Al Mosul . 2- Modern irrigation technologies and other topics in the wa issue, written by Dr. Issam Khudair Al-Hadithi, Dr. Ahm Madloul Al-Kubaisi, and Dr. Yas Khudair Hamza Al-Hadit 2010, Ministry of Higher Education and Scientific Researcl Anbar University
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

433. Course Name:
Soil morphology
434. Course Code:
0013305
435. Semester / Year:
First semester / THIRD
436. Description Preparation Date:
1/9/2023
437. Available Attendance Forms:
Actual presence
438. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2 practical units 3
439. Course administrator's name (mention all, if more than one name)
Name: Assistant prof. Ahmed Kazem Fazza Email: ahmad.kadhem@mu.edu.iq
440. Course Objectives

Course Objecti	**For the student to become familiar with the science of metallurgy.** **• The student should classify soil minerals and methods for distinguishing them** **• The student should separate the negative and positive effect of minerals on the soil** **• The student gets to know the depth of the soil and discover it** **• The student will be able to manage soil according to mineral content**

441. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

442. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation

					method
first	4	The student gets to know the conc of morphology	Soil morphology	Explanation, presentation of model and lecture	the exam
the secon	4	The student gets to know the horizons		Explanation, presentation of model and lecture	the exam
the third	4	The student gets to know diagnostic soil horizons		Explanation, presentation of model and lecture	the exam
the fourth	4	The student gets to know ther systems		Explanation, presentation of model and lecture	the exam
Fifth	4	The student gets to know the humidity systems.		Explanation, presentation of model and lecture	the exam
Sixth	4	For the student to become fami with the methods of morpholog description of the soil in question	Soil morphology	Explanation, presentation of model and lecture	the exam
Seventh	4	The student will be familiar v chemical weathering		Explanation, presentation of model and lecture	the exam
Eighth	4	The student gets to know phys weathering		Explanation, presentation of model and lecture	the exam
Ninth	4	For the student to know the factor soil formation		Explanation, presentation of model and lecture	the exam
The tenth	4	The student gets to know processes of soil formation		Explanation, presentation of model and lecture	the exam
Eleventh	4	The student gets to know the n processes of soil formation.	Soil morphology	Explanation, presentation of model and lecture	the exam
Twelfth	4	For the student to recognize symbols used with horizons.		Explanation, presentation of model and lecture	the exam
Thirteent	4	For the student to become fami with the morphological descrip form		Explanation, presentation of model and lecture	the exam
fourteent	4			Explanation, presentation of model and lecture	the exam
Fifteenth	4			Explanation, presentation of model and lecture	the exam

443. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

444. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	- Soil morphology, Dr. Walid Khaled Al-Akidi - Lectures
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America**

445. . Course Title:	
Design and analysis of agricultural experiments	
446. Course Code	
0C13301	
447. Semester / Year	
Third / autumn	
448. The history of preparation of this description	
1/9/2023	
449. Available Attendance Forms	
Actual attendant	
450. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours theoretical and 3 hours practical Number of units 3	
451. Course administrator's name (if more than one name)	
Name: Prof. Dr. Abdullah Karim Jabbar Email: Abdallah-karrm74@mu.edu.iq	
452. Course Objectives	
* Introducing the student that there are areas	Course Objectives:

that depend on conducting experiments and these experiments must be designed on scientific bases * When analyzing experiments, it is according to scientific methods and logical steps * When obtaining accurate results of the experiment leads us to make the appropriate decision * Introducing the student to many types of designs, as each experience has a specific design * Introduce the student to how to test the morale of each mathematical model * Introducing the student that there are tests conducted before the experiment and tests proposed after the experiment * Introducing the student that there are val that can be lost during the experiment and be estimated	

453. Teaching and Learning Strategies

Audio methods (teaching explanation of the subject) Blackboard writing style The method of direct dialogue between the teacher and the student with evaluation of the student in the classroom participations	Strategy

454. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	The week
Rapid exam	Lecture	A brief history of statistics, definition of statistics, division of statistics	Theoretical lecture	2	1

Rapid exam	Lecture	Measures of central tendency, measures of concentration	Theoretical lecture	2	2
Rapid exam	Lecture	Dispersion meters	Theoretical lecture	2	3
Rapid exam	Lecture	Hypothesis testing, statistical errors, hypothesis testing–t	Theoretical lecture	2	4
First month exam	Theoretical exam	examination	examination	2	5
Rapid exam	Lecture	Chi–Square Test	Theoretical lecture	2	6
Rapid exam	Lecture	general concepts and definitions in the design and analysis of experiments,	Theoretical lecture	2	7
Rapid exam	Lecture	Types of agricultural experiments, complete random design	Theoretical lecture	2	8
Rapid exam	Lecture	LSD Test	Theoretical lecture	2	9
Second month exam	Theoretical exam	examination	examination	2	10
Rapid exam	Lecture	Design of complete random sectors	Theoretical lecture	2	11
Rapid exam	Lecture	Duncan Test	Theoretical lecture	2	12
Rapid exam	Lecture	Latin Square Design	Theoretical lecture	2	13

Rapid exam	Lecture	Factor experiments	Theoretical lecture	2	14
Rapid exam	Lecture	Factor experiments with two factors	Theoretical lecture	2	15

455. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc	
456. Learning and Teaching Resources	
1- Design and analysis of experiments - Kha Al-Rawi and Khalaf Allah 2000	Required textbooks (methodology any)
	Main references (sources)
- Foreign books specialized in the design agricultural experiments .	Recommended books and references (scientific journals, reports...)
Arabic articles issued by academic and professic bodies	Electronic References, Websites

Course Description Form

457. Course Name:
Soil and water pollution
458. Course Code:
0013306
459. Semester / Year:
First semester / Third
460. Description Preparation Date:
1/9/2023
461. Available Attendance Forms:
Actual presence
462. Number of Credit Hours (Total) / Number of Units (Total)
30 hrs theoretical 45 hrs practical units 3.5

463. Course administrator's name (mention all, if more than one name)

Name: Lecturer Dr. Mohammed Abdulridha Naser
Email :mohammed.naser@mu.edu.iq

464. Course Objectives

Course Objecti	**• To introduce the student to the concept of soil and water pollution** **• To introduce the student to the ecosystem and its types.** **• Introducing the student to pollution – its causes and sources** **• The student will learn about the cycles of elements and their impact on environme pollution, then learn about water pollution, including surface and groundwater polluti** **• To learn about bacterial and viral water pollution, industrial water pollutants and behavior of pesticides in the aquatic environment.** **• To learn about bacterial and viral water pollution, industrial water pollutants and behavior of pesticides in the aquatic environment.**

465. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

466. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	**The student gets to know ecosystem and the definition pollution, its causes a sources.**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	**The student will be famil with the cycles of eleme (nitrogen, phosphorus, oxyg carbon, and sulfur)**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
the third	4	**The student will learn ab surface and groundwa pollution and seawa**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**

		pollution.			
the fourth	4	**The student will learn ab bacterial, viral, and wo pollution in water.**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	**The student will be famil with industrial water pollutar battery factories, and fertili factories.**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	**The student gets to know behavior of pesticides in aquatic environment, and behavior of pesticides on liv organisms.**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	**The student will learn ab biological pollution, sewa waste, and fertilization behav in water pollution**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	**The student will be famil with the division of wa according to its suitability different uses**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	4	**The student gets to kn biological soil pollution**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	**The student will learn about s contamination with pesticid the behavior of pesticides different types of soil, and biodegradation of pesticides the soil**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4		**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	**The student will learn about chemical and natural control pesticides in the soil and th absorption by plants.**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	**The student will learn abou global warming, ozone laye erosion, thermal pollution, a pollution Radiological.**	**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	4		**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4		**Soil and water pollution**	**Explanation, presentation of model and lecture**	**the exam**

467. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

468. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Environmental pollution, Prof. Dr. Falih Hassan - Prof. Bahaa Abdel-Jabbar

Main references (sources)	Environmental Pollution Dr. Muhammad Ammar Al-Rawi 198
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Internet network**

Course Description Form

469. Course Name:	
English Language	
470. Course Code:	
U013301	
471. Semester / Year:	
first semester / **The third**	
472. Description Preparation Date:	
1/9/2023	
473. Available Attendance Forms:	
Actual presence	
474. Number of Credit Hours (Total) / Number of Units (Total)	
theoretical 2 practical units 1	
475. Course administrator's name (mention all, if more than one name)	
Name: Asst.prof. Dr. Ahmed Merza Abood Email : ahmedme@mu.edu.iq	
476. Course Objectives	
Course Objecti	**- Teaching students, the basic concepts related to access to the simple basics of introduction to the English language for students of the College of Agriculture.**

	- **The student gets to know the concept of the English language.** - **Enabling students to know how to deal with the English language**

477. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

478. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**It's a wonderful world:** **- Tenses** **- Auxiliary verbs** **- Short answers** **- What's in a word?** **- Social expressions**	**1**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**Get happy!** **- Simple or continuous?** **- Passive** **- Sport** **- Numbers and dates**	**2**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2	**Telling tales:** **- Past tenses** **- Passive** **- Art and literature** **- Giving opinions**	**3**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2	**Doing the right thing:** **- Modal verbs 1** **- Obligation and permission** **- Nationality words** **- Requests and offers**	**4**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**On the move:** **- Future forms** **- The weather** **- Travelling**	**5**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities**

					in class
Sixth	2	**I just love it:** **- Like** **- Verb patterns** **- Describing food, towns, and people** **- Signs and sounds**	**6**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2	**The world of work:** **- Present perfect active and passive** **- Phrasal verbs** **- On the phone**	**7**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eighth	2	**Just imagine!** **- Conditionals** **- Time clauses** **- Base and strong adjectives** **- Making suggestions**	**8**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**Getting on together:** **- Modal verbs 2** **- Probability** **- Character adjectives** **- So do I! Neither do I!**	**9**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Tenth	2	**Obsessions:** **- Present perfect continuous** **- Time expressions** **- Compound nouns** **- Quantity**	**10**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**Tell me about it!** **- Indirect questions** **- Question tags** **- The body** **- Informal English**	**11**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2	**Life's great events!** **- Reported speech** **- Reporting verbs** **- Birth, marriage, and death** **- Saying sorry**	**12**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Writing:** **- Correcting mistakes 1** **- Letters and emails** **- A narrative 1** **- For and against** **- Making a reservation** **- A description 1** **- A letter of Application** **- A narrative 2** **- A description 2** **- Writing a biography** **- Words that join ideas** **- Correcting mistakes 2**	**1-12**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
fourteent	2	**Pairwork activities:** **- Practice**	**1-12**	**Explanation, presentation of**	**the exam, Quizzes,**

		- Vocabulary **- Reading and speaking** **- Problems**		**model and lecture**	**Reports, and activities in class**
Fifteenth	2	**Reviewing**	**1-12**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**

479. Course Evaluation	
1-Theoretical tests	35
2- Quizzes, Reports, and Class's Activities	15
4- Final exam	50

480. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Intermediate Student's Book: New Headway Plus (John and Soars) Oxford University Press
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**Internet network**

Course Description Form

481. Course Name:
Natural resource economics
482. Course Code:
0C23301
483. Semester / Year:
Second/third
484. Description Preparation Date:
26/2/2024
485. Available Attendance Forms:
Actual attendant
486. Number of Credit Hours (Total) / Number of Units (Total)
60 hrs , 2 units
487. Course administrator's name (mention all, if more than one

name)

Name: assistant prof. Dr. sadeq Hadi Hussein

Email: Sadeq.hadi@mu.edu.iq

488. Course Objectives

Course Objectives	1- Increase knowledge of natural resource economics. 2- Optimal exploitation of natural resources as they are viable resources 3- Teaching students the importance of natural resources and their role in the economic development of the country Developing the student's ability to make people aware that natural resources belong to future generations as well as their current

489. Teaching and Learning Strategies

Strategy	- Active participation in the classroom -Rapid exams -Monthly tests are proof of understanding the lecture

490. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	**Natural resource economics**	**1- Natural resource economics**	**Theoretical lecture**	Theoretical ex
2	2		**2- Land economics**		Theoretical ex
3	2		**3- Oil**		Theoretical ex

4	2	Natural resource economics	4- Water resources	Theoretical lecture	Theoretical ex
5	2		5- Human resources		Theoretical ex
6	2		6- Environment		Theoretical ex
7	2	Natural resource economics	7- Public goods and external factors	Theoretical lecture	Theoretical ex
8	2		8- General expenses		Theoretical ex
9	2		9- Public revenues		Theoretical ex
10	2	Natural resource economics	10- Preserving natural resources	Theoretical lecture	Theoretical ex
11	2		11- Sources of environmental pollution		Theoretical ex
12	2	Natural resource economics	12- Means of preserving natural resources	Theoretical lecture	Theoretical ex

491. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

492. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Natural Resource Economics - Hassoun Muhammad Ali Economics of Animal Production - Salem Tawfiq Al-Najafi - Mosul Press
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

493. Course Name:	
Drainage	
494. Course Code:	
0023301	
495. Semester / Year:	
Second / THIRD	
496. Description Preparation Date:	
26\2\2024	
497. Available Attendance Forms:	
Actual presence	
498. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 2 practical units 3	
499. Course administrator's name (mention all, if more than one name)	
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq	
500. Course Objectives	
Course Objecti	**It examines the concept of drainage, the types of drains, the basic purpose of th construction, and the characteristics of the soil related to drainage** **The relationship of drainage to plant growth and productivity, as well as the patterns distribution of drains networks and the requirements for implementing sewers.** **Mechanization and maintenance of drains of all kinds.**
501. Teaching and Learning Strategies	

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

502. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	The concept of drainage, the purpos constructing drains, the relationship drainage to plant growth productivity	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	Physical soil properties related drainage	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
the third	4	The hydrological cycle and the loca of irrigation and drainage therein	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	4	Drainage, soil salinity, leach requirements and salt balance	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	Investigations required to establish drains	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	Water flow in the soil and relationship to the concept of drain Analysis of flow	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	Measurement of saturated w conductivity	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	Types of drains, their classification, the objectives of their establishment	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	4	Open drains and covered drains	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	Incisive and vertical drains and desig drains systems	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	drain network distribution patterns	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	Mechanization of drains and supplies	**drainage**	**Explanation,**	**the exam**

		implementing drains		**presentation of model and lecture**	
Thirteent	4	Maintenance of covered drains, meth of cleaning them, causes malfunctions, and processing in drain system	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	4	Maintenance of open drains	**drainage**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4	Designs of open and covered d systems and calculation of distar between drains	**drainage**	**Explanation, presentation of model and lecture**	**the exam**

503. Course Evaluation	
1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

504. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Drainage (investigations, designs, implementation a maintenance). Dr. Mohsen Muhareb Awad Al-Lami and Dr. Al Saleh Abdul-Jabbar Al-Janabi. Iraq . Ministry of High Education and Scientific Research. University of Al Mosul .
Main references (sources)	Field drainage engineering
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

505. Course Name:
Soil minerals
506. Course Code:
0023302
507. Semester / Year:
First / THIRD
508. Description Preparation Date:
26\2\2024
509. Available Attendance Forms:

Actual presence

510. Number of Credit Hours (Total) / Number of Units (Total)

2 theoretical 2 practical units 3

511. Course administrator's name (mention all, if more than one name)

Name: Assistant Prof. Ahmed Kazem Fazza
Email: Ahmad.kadhem@mu.edu.iq

512. Course Objectives

Course Objecti	**• For the student to become familiar with the science of metallurgy** **• The student should classify soil minerals and methods for distinguishing them** **• The student should separate the negative and positive effect of minerals on the soil** **• The student gets to know the depth of the soil and discover it** **• The student will be able to manage soil according to mineral content** .

513. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

514. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	**The student gets to know the con of metals**	**Soil minerals**	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	**For the student to know the sou of salts**	**Soil minerals**	**Explanation, presentation of model and lecture**	**the exam**
the third	4	**The student will be familiar with methods of diagnosing minerals**	**Soil minerals**	**Explanation, presentation of model and lecture**	**the exam**

the fourth	4	The student gets to know the type soil minerals	Soil minerals	Explanation, presentation of model and lecture	the exam
Fifth	4	The student gets to know the behavior of soil minerals	Soil minerals	Explanation, presentation of model and lecture	the exam
Sixth	4	For the student to become fami with the relevant education section	Soil minerals	Explanation, presentation of model and lecture	the exam
Seventh	4	The student gets to know characteristics of soil minerals	Soil minerals	Explanation, presentation of model and lecture	the exam
Eighth	4	The student will be familiar v metal swelling and shrinkage	Soil minerals	Explanation, presentation of model and lecture	the exam
Ninth	4	For the student to know the effec minerals on fertility	Soil minerals	Explanation, presentation of model and lecture	the exam
The tenth	4	The student will be familiar with factors determining the quality irrigation water and the indica used to determine the quality irrigation water	Soil minerals	Explanation, presentation of model and lecture	the exam
Eleventh	4	The student will recognize expand and contracting metals	Soil minerals	Explanation, presentation of model and lecture	the exam
Twelfth	4	The student will learn how to coe with minerals that affect properties	Soil minerals	Explanation, presentation of model and lecture	the exam
Thirteent	4	For the student to become fami with the problems of limestone soil	Soil minerals	Explanation, presentation of model and lecture	the exam
fourteent	4		Soil minerals	Explanation, presentation of model and lecture	the exam
Fifteenth	4		Soil minerals	Explanation, presentation of model and lecture	the exam

515. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

516. Learning and Teaching Resources

Required textbooks (curricu books, if any)	**1– Soil minerals** : **prof. Dr. Salman Issa** 2-Lectures
Main references (sources)	
Recommended books and references (scientific	Iraqi academic scientific journals

journals, reports…)	
Electronic Referenc Websites	**Soil minerals**

Course Description Form

517. Course Name:	
remote sensing	
518. Course Code:	
0C23302	
519. Semester / Year:	
Second semester/ THIRD	
520. Description Preparation Date:	
26\2\2024	
521. Available Attendance Forms:	
Actual presence	
522. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 2 practical units 3	
523. Course administrator's name (mention all, if more than one name)	
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq	
524. Course Objectives	
Course Objecti	**1- It examines the concept of remote sensing, and the elements and applications remote sensing** **2- Researches the interactions of electromagnetic energy and spectral reflectivity and factors affecting them** **3- Knowing the sensors, their types and characteristics, as well as examining aerial a satellite images** **4- Studying methods for classifying satellite images** **5- The student's knowledge of geographic information systems (GIS) and their uses**
525. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups

	4- Practical lessons 5- Scientific trips 6 - Self-learning method

526. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	**History and target of rem sensing**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	**Electromagnetic energy a parts of the electromagn spectrum**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
the third	4	**Energy interaction w environmental components**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	4	**Spectral reflectivity and fact affecting it**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	Aerial photography and its stages of development	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	**Types of aerial photographs a their characteristics**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	**Rules for classifying aer photographs**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	**Types of characteristics of sp platforms**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	4	**Types and characteristics sensors**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	**Types and properties of satel data**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	**Satellite data sensing**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	**Methods of classifying satel images**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	**Remote sensing applications**	**remote sensing**	**Explanation, presentation of**	**the exam**

				model and lecture	
fourteent	4	**Geographic information syste**	**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4		**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**

527. Course Evaluation	
1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

528. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Remote sensing science: Prof. Dr. Ahmed Saleh Al-Mashhada M.D. Ahmed Madloul. 2014.
Main references (sources)	Basics of remote sensing (Canada center for remote sensing)
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Google earth ،USGS**

Course Description Form

529. Course Name:
Soil Salinity
530. Course Code:
0023303
531. Semester / Year:
Second / third
532. Description Preparation Date:
26\2\2024
533. Available Attendance Forms:
Actual presence
534. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3
535. Course administrator's name (mention all, if more than one name)

Name: Prof. Dr. Ghanem. B. Noni
Email: ghanem-bahlol@mu.edu.iq

536. Course Objectives

Course Objecti

- **The student gets to know the concept of saline soils**
- **For the student to know the sources of salts**
- **The student gets to know the classification and types of fertilizers and the importance**
- **• For the student to learn about methods of adding fertilizers**
- **• The student should separate the positive and negative aspects of fertilize and its harm to plants**
- **• For the student to recognize pollution from chemical fertilizers**
-

537. Teaching and Learning Strategies

Strategy

1-Explanation and clarification
2- Lecture method
3- Student groups
4- Practical lessons
5- Scientific trips
6 - Self-learning method

538. Course Structure

Week	Hrs	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**The student gets to know the concept of saline soils**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**For the student to know the sources of salts**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**The student will be familiar with the means of transporting salts**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**The student will be familiar with the stages of soil salinization**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**The student will be familiar with the**	**Soil Salinity**	**Explanation,**	**the exam**

		conditions of soil salinization		**presentation of model and lecture**	
Sixth	5	**student gets to know the types of saline and sodic soils**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	5	**For the student to recognize the aspects the effect of salinity on plant growth**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	5	**The student will be familiar with the indicators for determining the effect of salinity**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	5	**The student will be familiar with the means of increasing the ability of plants tolerate salinity**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**The student will be familiar with the factors determining the quality of irrigation water and the indicators used determine the quality of irrigation wate**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	5	**The student will be familiar with irrigation water classification systems**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	5	**The student will learn how to live with salinity**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	5	**For the student to become familiar w the problems of limestone soils**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	5	**The student will be familiar with the means of increasing the ability of plants tolerate salinity**	**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	5		**Soil Salinity**	**Explanation, presentation of model and lecture**	**the exam**

539. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

540. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Soil salinity. 2012. Dr. Haider Ai-Zoubedi. 2-Lectures
Main references (sources)	
Recommended books and references (scientific	Iraqi academic scientific journals

journals, reports…)	
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

541. Course Name:
Soil Organic Matter
542. Course Code:
0023304
543. Semester / Year:
First semester / Third
544. Description Preparation Date:
26\2\2024
545. Available Attendance Forms:
Actual presence
546. Number of Credit Hours (Total) / Number of Units (Total)
30 theoretical 45 practical units 3.5
547. Course administrator's name (mention all, if more than one name)
Name: Lecturer Dr. Mohammed Abdulridha Naser Email :mohammed.naser@mu.edu.iq
548. Course Objectives

Course Objecti	**• Teaching students the basic concepts related to organic matter in the soil a understanding its role in various environmental systems, including agricultural on forests, marshes, and swamps.** **• Estimating the percentage of organic matter in the soil using various laboratory meth or estimating it in the field and then expressing it quantitatively in kilograms or tons hectare.** **• Drawing a relative score for the organic carbon balance between the soil and its exte surroundings.** **• Describe how carbon and nitrogen move under the influence of current agricult methods and the impact of sudden, severe changes such as fires, droughts, and floods.** **• Measuring the ability of the soil in the short and long term to recover and perform**

	functions, by knowing the level of microbial mass, the ratio of carbon to nitrogen, and nature of the organic matter, **• Realizing the agricultural and environmental value of organic matter,** **• To contribute to improving the general management of organic matter in the soil.**

549. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

550. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	**Sources of organic matter in soil**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	**Humus, its origin, definition and properties**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
the third	4	**Components of plant waste**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	4	**Decomposition of organic compounds and formation of humus**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	**Simple organic compounds resulting from the decomposition of organic matter**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	**Carbon cycle in nature**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	**Organic compounds containing nitrogen and their mineralization**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	**Organic compounds containing phosphorus and their mineralization**	**Soil Organic Matter**	**Explanation, presentation of**	**the exam**

				model and lecture	
Ninth	4	**Sulfur-containing organic compounds and their mineralization**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	**Effect of climate and vegetation on soil organic matter content**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	**Changes in organic matter in agriculture and the direct effect of organic compounds on higher plants**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	**The effect of organic matter on soil properties and the relationship between them**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	**The C:N ratio, its importance and value in some plants and organisms**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	4	**The amount of organic matter and nitrogen in the soil and Some characteristics of organic soil**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4	**Liquid organic fertilizers**	**Soil Organic Matter**	**Explanation, presentation of model and lecture**	**the exam**

551. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

552. Learning and Teaching Resources

Required textbooks (curricu books, if any)	**Soil organic matter and organic manure** **Prepared by: Nour El-Din Shawqi Abdel-Wahab Abdel-Razzaq a Qahtan Jamal**
Main references (sources)	**1. Soil Organic Matter in Sustainable Agriculture (Advances in Agroecology) by Fred Madoff and Ray R. Weil (May 27, 2004). CRC Press; 1 edition. 416 pages. 1- Carbon** **2. Soil Organic Matter Characterization. Chapter 3. . Publisher a Nitrogen in the Terrestrial EnvironmentSpringer Netherlands 2008, 81-111.**
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Internet network**

Course Description Form

553. Course Name:

Soil survey and classification

554. Course Code:

0013401

555. Semester / Year:

First / Fourth

556. Description Preparation Date:

26\2\2024

557. Available Attendance Forms:

Actual presence

558. Number of Credit Hours (Total) / Number of Units (Total)

2 theoretical 2 practical units 3

559. Course administrator's name (mention all, if more than one name)

Name: Assistant Prof. Ahmed Kazem Fazza
Email: Ahmad.kadhem@mu.edu.iq

560. Course Objectives

Course Objecti	**• For the student to become familiar with the science of surveying and classification** **• The student should classify all types of soil** **• That the student can distinguish soil** **• The student gets to know the types of classifications in the world** **• The student will be able to manage soil according to its characteristics** .

561. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

562. Course Structure

Week	Hours	Required Learning	Unit or subject	Learning	Evaluati

		Outcomes	name	method	on method
First	4	The student gets to know the con of surveying and classification	Soil survey and classification	Explanation, presentation of model and lecture	the exam
the secon	4	The student gets to know the ty of international categories	Soil survey and classification	Explanation, presentation of model and lecture	the exam
the third	4	For the student to become fami with classification methods.	Soil survey and classification	Explanation, presentation of model and lecture	the exam
the fourth	4	The student will be familiar with stages of soil classification	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Fifth	4	The student will learn how to conduct soil mineral surveys	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Sixth	4	The student will know how to prep soil maps.	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Seventh	4	For the student to become fami with the classification of land uses.	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Eighth	4	The student will be familiar v drawing and preparing soil maps.	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Ninth	4	For the student to become fami with the modern American systen soil classification.	Soil survey and classification	Explanation, presentation of model and lecture	the exam
The tenth	4	The student gets to know the clim and humidity factors	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Eleventh	4	The student gets to know diagnostic soil horizons	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Twelfth	4	The student will know how diagnose unidentified soils	Soil survey and classification	Explanation, presentation of model and lecture	the exam
Thirteent	4	The student gets to know soil types	Soil survey and classification	Explanation, presentation of model and lecture	the exam
fourteent	4		Soil survey and classification	Explanation, presentation of model and lecture	the exam

Fifteenth	4		**Soil survey an classification**	**Explanation, presentation of model and lecture**	**the exam**

563. Course Evaluation	
1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

564. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	**1–Soil survey and classification**, **Dr**. **Ahmed Al–Mashdani**
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil classification**

Course Description Form

565. Course Name:
Soil maintenance
566. Course Code:
0013402
567. Semester / Year:
Second /fourth
568. Description Preparation Date:
26\2\2024
569. Available Attendance Forms:
Actual presence
570. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3
571. Course administrator's name (mention all, if more than one name)
Name: Assistant Prof Mustafa Abed Manshood Email: Mustafa.manshood@mu.edu.iq
572. Course Objectives

Course Objecti	• **Understanding the development tools for soil conservation for opti exploitation of land and water and their relationship to erosion, t knowing the effects resulting from them.** • **And ways to process it for the purpose of use and management**

573. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

574. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**Introduction to soil and wate conservation, its concept and importance, the relationship soil conservation to other topics, Factors affecting soil formati goals and principles, soil maintenance * Rain data analysis**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**Clouds and rain *Calculate the maximum fl rate and use the basic wa relations device**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**Al-Sayh *Applications based the general equation of s losses**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**Geological erosion *Calculating the gene equation factors for soil los in the field**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**Water erosion, its types, the mechanics of its occurrence, and how to control it *Estimate the amounts of w erosion in the field using general equation for w erosion**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	5	**T Soil conservation methods, general soil loss equation**	**Soil maintenance**	**Explanation, presentation of**	**the exam**

		*** Conducting terrace designs**		**model and lecture**	
Seventh	5	**Wind erosion *Field observations on soil a water management procedur**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	5	**Controlling wind erosion *A visit to a weather station Samawah**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	5	**Contour farming, strip and terrace farming *The concept of positivity a its applications**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**The nature of land use and its role in soil maintenance *Calculating the amount leachate in the field**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	5	**Good ways to use land and conserve soil and water *Observations of wind erosio**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	5	**For the student to become familiar with the conditions o the lands and soil of Iraq, the types of problems, and how t manage them Practical applications on la valuation methods**	**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent			**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
fourteent			**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth			**Soil maintenance**	**Explanation, presentation of model and lecture**	**the exam**

575. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

576. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1Al-Latif, Nabil Ibrahim 1991. Soil and water conservation. Ministry of Higher Education and Scientific Research. Baghda University -2• Ismail, Laith Khalil, 1985. Soil Conservation. Ministry of Higher Education and Scientific Research. University of Al Mosul. Nineveh. translator. -3 Al-Ani, Abdel Fattah Abdullah, 1987. Soil conservation. Ministry of Higher Education and Scientific Research. Technic Institutes Foundation. Baghdad. -4 Fahd, Ali Abd. 1984. Soil and Water Conservati

	Engineering. Ministry of Higher Education and Scienti Research. Baghdad University. Baghdad. translator.
Main refe rences (sources)	Articles on land conservation - Dr. Khaled Hassan Al-Khalid Arab Republic of Egypt - 2007
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	

Course Description Form

577. Course Name:	
Soil microbiology	
578. Course Code:	
0013403	
579. Semester / Year:	
First / Fourth	
580. Description Preparation Date:	
26\2\2024	
581. Available Attendance Forms:	
Actual presence	
582. Number of Credit Hours (Total) / Number of Units (Total)	
30 theoretical 45 practical units 3	
583. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Ghanem. B. Noni Email: ghanem-bahlol@mu.edu.iq	
584. Course Objectives	
Course Objecti	• **The student gets to know the classification and types of Soil microbiology and their importance** • **For the student to learn about methods of Soil microbiology** • **For the student to recognize method of Soil microbiology** • **• The student should evaluate Soil microbiology**
585. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method

	3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

586. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Historical overview, definition, and**	**Soil Microbiology**	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**importance of studying soil microbiolog Sections of soil microbiology**	**Soil Microbiology**	**Explanation, presentation of model and lecture**	**the exam**
the third	2	**Soil microbial groups: bacteria, fu algae, actinomycetes, archa mycorrhizae.**	**Soil Microbiology**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	2	**Organic matter: carbon cycle, enzyma activity in soil**	**Soil Microbiology**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**Biotransformations of N, nitrogen cy urea decomposition, nitration proc mineralization and assimilation, C/N ra**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	2	**Biological nitrogen fixation**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**Biological transformations of phosphor its cycle and the role of microorganism its transformations**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**Biological transformations of phosphor its cycle and the role of microorganism its transformations**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**Biological transformations of sulf sulfur cycle, mineralization, microb metabolism, oxidation, and reduction inorganic sulfur compounds.**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	2	**Biotransformations of iron: oxidati reduction, and decomposition of orga iron compounds**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**

Eleventh	2	**Biotransformations of iron: oxidati reduction, and decomposition of orga iron compounds**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	2	**Decomposition of pesticides in soil**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**Relationships between microorganisı the area surrounding the ro (rhizosphere) and the activity microorganisms in this area Factors affecting the growth of**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	2	**microorganisms, growth microorganisms**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	2	**Factors affecting the growth microorganisms, growth microorganisms**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**

587. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

588. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Soil Microbiology, Dr. Ghayath Muhammad Al-Sourji 2-Lectures
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Micrology**

Course Description Form

589.	Course Name:
Plant Nutrition	
590.	Course Code:

0013404
591. Semester / Year:
First / fourth
592. Description Preparation Date:
26\2\2024
593. Available Attendance Forms:
Actual presence
594. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3
595. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Falah Hasan Issa Email: flah70-hasan@mu.edu.iq
596. Course Objectives

Course Objecti	• **The student gets to know Plant Nutriti0n** • **The student should classify Nutrient elements** • **The student should detail the benefits and harms of elements factors such as Macro and Micro elements** • **The student should know about nutrient solution**

597. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

598. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First	5	**Definition of plant nutrit conditions for the nutrient and importance.**	**Plant Nutrition**	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**Distribution of nutrients accordin their concentrations, physiolog functions and factors affecting ther**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
the third	5	**Organic matter: its definition, ty and conditions for its decompositio**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
the fourth	5	**Foliar fertilization**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Fifth	5	**Factor determining plant growth**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Sixth	5	**Soilless agriculture: its definit importance, and historical overviev**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Seventh	5	**Types of soilless agriculture and advantages of each**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Eighth	5	**Preparing the nutrient solution**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Ninth	5	**Magnet technology: its definit types, importance and disadvantag**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
The tenth	5	**Ionic antagonism**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Eleventh	5	**The effect of macro elements on pla**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**
Twelfth	5	**The effect of micro elements on pla**	Plant Nutrition	**Explanation, presentation of the mo and lecture**	**the exam**

599. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

600. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Plant Nutrition. 2014. Part 1 .Dr.NoorAldien Shawqi 2- Plant Nutrition. 2014. Part 2 .Dr.NoorAldien Shawqi
Main references (sources)	Plant Nutrition
Recommended books and references (scientific	Iraqi academic scientific journals

journals, reports…)	
Electronic Referenc Websites	**Plant Nutrition Journal** .

Course Description Form

601. Course Name:	
Hydrology	
602. Course Code:	
0013405	
603. Semester / Year:	
First / fourth	
604. Description Preparation Date:	
26/2/2024	
605. Available Attendance Forms:	
Actual attendant	
606. Number of Credit Hours (Total) / Number of Units (Total)	
60 hrs theoretical 45 hrs practical units 3.5	
607. Course administrator's name (mention all, if more than one name)	
Name: Assistant Prof. Dr. Qassim A. Talib Alshujairy Email: qassimtalib@mu.edu.iq	
608. Course Objectives	
Course Objectives	The objectives of a hydrology course are to provide students with a comprehensive understanding of the principles and processes related to the distribution, movement, and properties of water on Earth.
609. Teaching and Learning Strategies	
Strategy	**Lectures:** Traditional classroom lectures are often used to present fundamental concepts, theories, and principles of hydrology. Lectures provide an opportunity for instructors to convey information, discuss theoretical frameworks, and highlight key concepts. **Laboratory Work:** Hands-on laboratory sessions allow students to apply theoretical knowledge to practical situations. In hydrology courses, students may engage in activities such as water quality testing, flow measurements, and experiments related to hydrological processes. **Fieldwork:** Field trips or fieldwork exercises provide students with direct exposure to real-world hydrological environments. This could include visits to watersheds, rivers, lakes, or groundwater monitoring sites to observe and analyze hydrological features and processes.

610. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Hydrology	1. Understanding the Water Cycle	Theoretical Lecture	Theoretical exam
2	2		2. Watershed Analysis		
3	2		3. Quantifying Precipitation and Runoff		
4	2		4. Groundwater Hydrology		
5	2		5. Hydrological Modeling		
6	2		6. Hydrological Data Collection		
7	2		7. Water Quality		
8	2		8. Climate Change and Hydrology		
9	2		9. Water Resource Management		
10	2		10. Hydrological Engineering		
11	2		11. Environmental Impact Assessment		

611. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

612. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Applied Hydrology Ray K. lensley et.al New York, USA
Main references (sources)	
Recommended books and references (scientific journals, reports…)	International Journal of Hydrology Science and Technology
Electronic References, Websites	

Course Description Form

613. Course Name:
English Language
614. Course Code:
U013401
615. Semester / Year:
first semester / The fourth
616. Description Preparation Date:
26\2\2024
617. Available Attendance Forms:
Actual presence
618. Number of Credit Hours (Total) / Number of Units (Total)
theoretical 2 practical units 1
619. Course administrator's name (mention all, if more than one name)
Name: Asst.prof. Dr. Ahmed Merza Abood Email : ahmedme@mu.edu.iq

620. Course Objectives	
Course Objecti	**- Teaching students, the basic concepts related to access to the simple basics of introduction to the English language for students of the College of Agriculture.** **- The student gets to know the concept of the English language.** **- Enabling students to know how to deal with the English language**

621. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

622. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**No place like home:** **- The tense system** **- Informal language** **- Compound words** **- Social expression**	**1**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
the secon	2	**Been there, done that!** **- Present perfect** **- Simple and continuous** **- Hot verbs-make, do** **- Exclamations**	**2**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the third	2	**What a story!** **- Narrative tenses** **- Writing narratives** **- Vocabulary and speaking** **- Everyday English**	**3**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
the fourth	2	**Nothing but the truth:** **- Questions and negatives** **- Prefixes and antonyms** **- Being polite**	**4**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Fifth	2	**An eye to the future:** **- Future forms** **- Hot verbs-take, put** **- Telephoning**	**5**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Sixth	2	**Making it big:** **- Expressions of quantity** **- 'export and ex'port** **- Business expressions and numbers**	**6**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Seventh	2	**Getting on together:** **- Modals and related verbs 1** **- Hot verb get** **- Exaggeration and understatement**	**7**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eighth	2	**Going to extremes:** **- Relative clauses** **- Participles** **- Adverb collocations** **- The world around**	**8**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Ninth	2	**Things ain't what they used to be!** **- Expressing habit** **- Used to do/doing**	**9**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports,**

		- Homonyms/Homophones **- Making your point**			**and activities in class**

Tenth	2	**Risking life and limb:** **- Modal auxiliary verbs 2** **- Synonyms** **- Metaphors and idioms-the body**	**10**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Eleventh	2	**In your dreams:** **- Hypothesizing** **- Expressions with if** **- Word pairs** **- Moans and groans**	**11**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
Twelfth	2	**It's never too late:** **- Articles** **- Determiners** **- Hot words-life, time** **- Linking and commenting**	**12**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Thirteent	2	**Writing:** **- Applying for a job-a CV and a covering letter** **-Informal Letters-correcting mistakes** **- Narrative writing 1** **- Linking ideas** **- Emailing friends** **- Report writing- a consumer survey** **- Arguing your case-for and against** **- Descripting places-my favourite part of town** **- Writing for talking -what I want to talk about is …** **- Formal and informal letters and emails-do's and don'ts** **- Narrative writing 2** **- Adding emphasis in writing**	**1-12**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
fourteent	2	**Extra material:** **- Everyday English** **- Practice (Exchanging information)** **- Speaking and listening (dream come true)** **- Practice (news and responses)** **- Everyday English (roleplay)** **- Practice (Quiztime!)** **- Vocabulary and pronunciation** **- The pace of life**	**1-12**	**Explanation, presentation of model and lecture**	**the exam, Quizzes, Reports, and activities in class**
Fifteenth	2	**Reviewing**	**1-12**	**Explanation, presentation of model and lecture**	**The exam, Quizzes, Reports, and activities in class**
623. Course Evaluation					
1-Theoretical tests		35			

2- Quizzes, Reports, and Class's Activities 15 4- Final exam 50	
624. Learning and Teaching Resources	
Required textbooks (curricu books, if any)	Upper-Intermediate Student's Book: New Headway Plus (Jo and Liz Soars) Oxford University Press
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	**Internet network**

Course Description Form

625. Course Name:
Modern irrigation technology
626. Course Code:
0013407
627. Semester / Year:
First semester / Fourth
628. Description Preparation Date:
26\2\2024
629. Available Attendance Forms:
Actual presence
630. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2 practical units 3
631. Course administrator's name (mention all, if more than one name)
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq
632. Course Objectives

Course Objecti	**1- Researches the concept of modern irrigation systems technologies.** **2- Researches ancient and modern irrigation technologies and the difference betw them.**

	3- The student evaluates the cost of maintaining irrigation and drainage projects. 4- The student's knowledge of the philosophy of modern irrigation technologies. 5- Study the components of modern irrigation systems and methods of maintaining then 6- Introducing the student to the importance of rationalizing water consumption and wat harvesting.

633. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

634. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	4	Introduction, irrigation netw basics of irrigation system design	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
the secon	4	Design factors, water consumpt irrigation interval, and irriga depth	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
the third	4	Surface irrigation. Surface irriga mechanism, water balance irrigation	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
the fourth	4	Strip irrigation, design assumpti and determinants, rate and depth flow.	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
Fifth	4	Line irrigation, considerations and assumptions	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
Sixth	4	Philosophy of modern irriga technologies, water requirem under modern irrigation systems	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
Seventh	4	Sprinkler irrigation, components the sprinkler irrigation system, ty of sprinkler irrigation systems	Modern irrigation technology	Explanation, presentation of model and lecture	the exam
Eighth	4	Uniformity of spray w distribution, overlapping sp patterns, consistency coefficient water distribution under sprinklers	Modern irrigation technology	Explanation, presentation of model and lecture	the exam

Ninth	4	**Hydraulics of flow in pi permissible change in pressure**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	**Drip irrigation, the main parts of drip irrigation system, drippers**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	**Hydraulic drippers, wet area**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	**Design water requirement for irrigation,**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	**Advantages and disadvantages sprinkler and drip irrigat Maintaining the sprinkler and irrigation system**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	4	**Center pivot irrigation, components, advantages disadvantages, type characteristics of the sprin package used to distribute water**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4	**Rationalization of water consumpt water harvesting and its importanc**	**Modern irrigation technology**	**Explanation, presentation of model and lecture**	**the exam**

635. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

636. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1-Modern irrigation technologies and other topics in the wat -issue, written by Dr. Issam Khudair Al-Hadithi, Dr. Ahmed Madloul Al-Kubaisi, and Dr. Yas Khudair Al-Hadithi, 2010. Ministry of Higher Education and Scientific Research. Anbar University. 2- Field Irrigation Systems Engineering 1992, written by Ahmed Youssef Hajim and Haqqi Ismail Yassin. Ministry Higher Education and Scientific Research, University of Mos College of Engineering.
Main references (sources)	1-Field Irrigation Systems Engineering 1992, written by Dr. Ahmed Youssef Hajim and Haqqi Ismail Yassin. Ministry of Higher Education and Scientific Research, University of Mosu College of Engineering. 2- Irrigation, its basics and applications, written by Dr. Na Ibrahim Al-Taif and Dr. Issam Khudair Al-Hadithi 19 Ministry of Higher Education and Scientific Resear University of Baghdad.
Recommended books and	Iraqi academic scientific journals

references (scientific journals, reports…)	
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

637. Course Name:
Fertilizer technology
638. Course Code:
0023401
639. Semester / Year:
Second semester / Fourth
640. Description Preparation Date:
26\2\2024
641. Available Attendance Forms:
Actual presence
642. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2 practical units 3
643. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Hanoon N. Kadhem Email: reda@mu.edu.iq
644. Course Objectives

Course Objecti	• **The student gets to know the classification and types of fertilizers and the importance** • **• For the student to learn about methods of adding fertilizers** • **• The student should separate the positive and negative aspects of fertilize and its harm to plants** • **• For the student to recognize pollution from chemical fertilizers** • **• The student should evaluate soil fertility** •
645. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons

	5- Scientific trips 6 - Self-learning method

646. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**Fertilizers, their types and classificat (fertilizers concepts).**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**Mineral fertilizers: Nitrogen fertiliz their types and behavior in the soil a their manufacture**	Fertilizer technology	**Explanation, presentation of model and lecture**	**the exam**
the third	2	**Phosphate fertilizers, their typ behavior in soil, and manufacturing**	Fertilizer technology	**Explanation, presentation of model and lecture**	**the exam**
the fourth	2	**Potassium fertilizers, their types and th behavior in the soil and th manufacture/Sulphur, calcium a magnesium fertilizers Sulfat, calicium a magnesium fertilizers**	Fertilizer technology	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**Its types, behavior in soil and productio**	Fertilizer technology	**Explanation, presentation of model and lecture**	**the exam**
Sixth	2	**Micronutrient Fertilizers, their typ behavior in soil, and manufacturing**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**Organic fertilizers (types and methods preparation) Organic fertilizers**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**Biofertilizers, their preparation a methods of adding them**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**Liquid fertilizers and methods preparing them**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	2	**Nano fertilizers (types and methods preparation) Nano fertilizers**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	2	**Fertilizers Evaluation, Mixing a manufacturing**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	2	**Analytical Fertilizer analysis a evaluation/environmental proble associated with the use of fertiliz (pollution).**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**

Thirteent	2	**Economics of using fertilizers**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	2	**Techniques of using chemical fertilizers Iraqi agriculture**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	2	**Fertilizers - type of irrigation systems a types of fertilizers that can be added The movement of fertilizer and eleme in the soil and their impact on pl growth**	**Fertilizer technology**	**Explanation, presentation of model and lecture**	**the exam**

647. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

648. Learning and Teaching Resources

Required textbooks (curricu books, if any)	11- Fertilizer Technologies. 2012. Dr. Nour El-Din Shawqi Ali.
Main references (sources)	1- Soil fertility. 2014. Dr.. Nour El-Din Shawky Ali Dr. hamd alla Suleiman 2- Soil Fertility 1988 Dr. Kazem Mashhout Awad
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

649. Course Name:
Land reclamation
650. Course Code:
0023402
651. Semester / Year:
Second / fourth
652. Description Preparation Date:
26\2\2024
653. Available Attendance Forms:
Actual presence

654. Number of Credit Hours (Total) / Number of Units (Total)

2 theoretical 2 practical units 3

655. Course administrator's name (mention all, if more than one name)

Name: Prof. Dr. Ghanem. B. Noni
Email: ghanem-bahlol@mu.edu.iq

656. Course Objectives

Course Objecti	•

657. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

658. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	The student gets to know the concept of saline soils	Land Reclamation	Explanation, presentation of model and lecture	the exam
the secon	4	For the student to know the sources of salts	Land Reclamation	Explanation, presentation of model and lecture	the exam
the third	4	The student will be familiar with the means transporting salts	Land Reclamation	Explanation, presentation of model and lecture	the exam
the fourth	4	The student will be familiar with the stages of salinization	Land Reclamation	Explanation, presentation of model and lecture	the exam
Fifth	4	The student will be familiar with the condition soil salinization	Land Reclamation	Explanation, presentation of model and lecture	the exam
Sixth	4	The student gets to know the types of saline sodic soils	Land Reclamation	Explanation, presentation of model and lecture	the exam
Seventh	4	Identify the aspects of the effect of salinity on p	Land	Explanation,	the exam

		growth	Reclamation	presentation of model and lecture	
Eighth	4	Indicators for determining the effect of salinity	Land Reclamation	Explanation, presentation of model and lecture	the exam
Ninth	4	Identify ways to increase the ability of plants tolerate salinity	Land Reclamation	Explanation, presentation of model and lecture	the exam
The tenth	4	Factors determining irrigation water quality indicators used to determine irrigation wa quality	Land Reclamation	Explanation, presentation of model and lecture	the exam
Eleventh	4	The student will be familiar with irrigation wa classification systems	Land Reclamation	Explanation, presentation of model and lecture	the exam
Twelfth	4	The student will learn how to live with salinity	Land Reclamation	Explanation, presentation of model and lecture	the exam
Thirteent	4	For the student to become familiar with problems of limestone soils	Land Reclamation	Explanation, presentation of model and lecture	the exam
fourteent	4			Explanation, presentation of model and lecture	the exam
Fifteenth	4			Explanation, presentation of model and lecture	the exam

659. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

660. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Land Reclamation Dr. Hadi Hassan
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

661. Course Name:

Soil management					
662. Course Code:					
0023403					
663. Semester / Year:					
Second / Fourth					
664. Description Preparation Date:					
26\2\2024					
665. Available Attendance Forms:					
Actual presence					
666. Number of Credit Hours (Total) / Number of Units (Total)					
2 theoretical 2 practical units 3					
667. Course administrator's name (mention all, if more than one name)					
Name: Assistant Prof Mustafa Abed Manshood Email: Mustafa.manshood@mu.edu.iq					
668. Course Objectives					
Course Objecti	• **The student gets to know the introduction to the concept and objecti of educational management** • **Understanding the development tools for soil conservation for opti exploitation of land and water and their relationship to erosion, t knowing the effects resulting from them.** • **And ways to process it for the purpose of use and management**				
669. Teaching and Learning Strategies					
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method				
670. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

First	5	**The student gets to know introduction to the concept a objectives of educatio management**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**For the student to recognize importance of classifying soi its management, classificat and level of series**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**Soil surveying tasks in th management, methods measuring areas on land and the map, choosing import drawing standards.**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**The student will be famil with the sample and inspect for the purposes administration and scient research, and the rules collecting samples and for agricultural purposes**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**The student will know classification of lands agricultural and oth purposes, and how to use s survey reports and maps in s management**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	5	**The student gets to know quality of lands and th relationship to production, a the link between the map u the classification unit, and management unit in formation of farm fields.**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	5	**The student will be familiar with land use evaluation How to use soil survey repo and maps in soil managemen**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	5	**For the student to become familiar with the conditions o the lands and soil of Iraq, the types of problems, and how t manage them Practical applications on la valuation methods**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	5	**The student will be familiar with diagnosing soil and land problems at the farm level Systematic diagnosis of soil problems on the farm Drawing a map of pedagogi and ideological problems**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**The student should become familiar with agricultural**	**Soil management**	**Explanation, presentation of**	**the exam**

		planning and the administrative program that the specialist must present to the employer Preparing the administrat map (an attempt at applicatio		**model and lecture**	
Eleventh	5	**Good ways to use land and conserve soil and water *Observations of wind erosio**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	5	**The student gets to kn desertification, its types a causes**	**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent			**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
fourteent			**Soil management**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth			**Soil management**	**Explanation, presentation of model and lecture**	**the exam**

671. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

672. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Soil and Land Use Management, 1990, Dr. Walid Khaled Hassan Al-Akidi. 2- Soil management in planning and land use, 1999
Main references (sources)	Soil and land use management
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	/www.iraqwho.com › About_TheLand_So

Course Description Form

673. Course Name:

Soil-Plant-Water Relationship

674. Course Code:

0023404

675. Semester / Year:

Second semester / fourth

676. Description Preparation Date:

26/2/2024

677. Available Attendance Forms:

Actual attendant

678. Number of Credit Hours (Total) / Number of Units (Total)

60 hrs Theoretical + 45 hrs practical 3>5 units

679. Course administrator's name (mention all, if more than one name)

Name: Qassim A. Talib Alshujairy
Email: qassimtalib@mu.edu.iq

680. Course Objectives

Course Objectives	**The objectives of study Soil-Plant-Water course are to provide students with a comprehensive understanding of the relationships between soil, water, and plants**

681. Teaching and Learning Strategies

Strategy	**The strategies for a course on soil-plant-water interactions often involve a combination of theoretical knowledge, practical applications, and field experiences**

682. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			1. Understanding Soil Properties: **2. Soil-Water Movement:** **3. Plant-Water Relations:** **4. Soil-Water-Plant Interactions:** **5. Irrigation and Water Management:** **6. Soil and Water Conservation:** **7. Soil-Water Quality:** **8. Sustainable**		

			Agriculture: **9. Climate Change Impacts:** **10. Applied Research and Technology:** **11. Fieldwork and Practical Skills:**		

683. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
684. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Soil-Plant-Water Relationship
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

685. Course Name:
Desertifiation
686. Course Code:
0023405
687. Semester / Year:
Second semester / Fourth
688. Description Preparation Date:
26\2\2024
689. Available Attendance Forms:
Actual presence
690. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 2
691. Course administrator's name (mention all, if more than one name)
Name:Ass. Prof. Ahmed k.fazza Email ahmad.kadem @mu.edu.iq
692. Course Objectives

Course Objecti	• **The student gets to know the concept of Desertification**

	• **For the student to know the resources of Desertification** • **The student should separate the positive and negative aspects of fertilizer and its harm to plants** •

693. Teaching and Learning Strategies

Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

694. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**The student gets to know the concept of Desertification**	**Desertificatio**	**Explanation, presentation of model and lecture**	**the exam**
the secon	5	**For the student to know the resources of Desertification**	**Desertificatio**	**Explanation, presentation of model and lecture**	**the exam**
the third	5	**The student will be familiar with the mea of SGS**	**Desertificatio**	**Explanation, presentation of model and lecture**	**the exam**
the fourth	5	**The student will be familiar with the stag of Desertification**	**Desertificatio**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	5	**The student will be familiar with the conditions of soil Deserteficition**	**Desertificati**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	5	**student gets to know the types ofDesertification**	**Desertifiaca n**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	5	**For the student to recognize the aspects o the effect of Deserification**	**Desertificati**	**Explanation, presentation of model and lecture**	**the exam**

Eighth	5	**The student will be familiar with the indicators for determining the effect of Desertification**	**Desertificati**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	5	**The student will be familiar with the mea of increasing the ability of plants to tolera Desertification**	**Desertificati**	**Explanation, presentation of model and lecture**	**the exam**
The tenth	5	**The student will be familiar with the facto determining the quality of irrigation wate and the indicators used to determine the quality of irrigation water**	**Desertificati**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	5	**The student will be familiar with irrigatio water classification systems**	**Desertificati**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	5	**The student will learn how to live with Desertefication**	**desertificati**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	5	**For the student to become familiar with problems of limestone soils**	**Deserificatio**	**Explanation, presentation of model and lecture**	**the exam**
fourteent	5	**The student will be familiar with the mea of increasing the ability of plants to tolera Desertification**	**Deserteficat**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	5			**Explanation, presentation of model and lecture**	**the exam**

695. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

696. Learning and Teaching Resources

Required textbooks (curricu books, if any)	1- Desertification. Desertification in iraq.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

697. Course Name:

sustainable development
698. Course Code:
U023401
Semester / Year:
699.
Second semester / fourth
700. Description Preparation Date:
26/2/2024
701. Available Attendance Forms:
Actual presence
702. Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 0 practical units 2
703. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. raheem alwan halool Email: **Rahim_alwan@mu.edu.iq**
704. Course Objectives

Course Objectives	For the student to know the types of sustainable development • The student should classify sustainable development and its benefits to the environment • The student should detail the harms of environmental pollution • The student learns how to enhance the natural vital aspect • The student should evaluate the scientific reality to maintain a sustainable environment •
705. Teaching and Learning Strategies	
Strategy	1- Explanation and clarification

	2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

706. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	**The student gets to know the ecosystems of sustainable agriculture**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
The second	5	**is for the student to become familiar with the use of renewable resources**	**Sustainable development**		
Third	5	**The student learns about reducing toxic substances in the environment**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam

Fourth	5	**The student gets to know soil conservation**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Fifth	5	**: The student learns about water conservation**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Sixth	5	**: The student learns about energy conservation**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Seventh	5	**: The student gets to know the preservation of seeds and seeds**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Eighth	5	**The student gets to know capital in the sustainable agricultural system**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam

Ninth	5	**The student gets to know the management of the animal and plant ecosystem**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Tenth	5	**: The student will learn about enhancing and preserving natural life**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Eleventh Twelfth	5	**The student gets to know Recycling and preserving items The student gets to know the economics of natural resources**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam the exam
hirteenth	5	**: The student knows how to manage human capital**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam

Fourteenth	5	**: The student gets to know sustainable agriculture**	**Sustainable development**	Explanation, presentation of the model and lecture	the exam
Fifteenth	5	The student gets to know the types of sustainable natural energy	Sustainable developme nt	Explanation, presentation of the model and lecture	the exam

707. Course Evaluation

Theoretical tests 40

2- Practical tests -

3- Reports and studies 10

4- Final exam 50

708. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	

Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals
Electronic References, Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

709. Course Name:	
Professional ethics	
710. Course Code:	
U023402	
711. Semester / Year:	
First / fourth	
712. Description Preparation Date:	
26\2\2024	
713. Available Attendance Forms:	
Actual presence	
714. Number of Credit Hours (Total) / Number of Units (Total)	
60 hrs theoretical units 2	
715. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Falah Hasan Issa Email: flah70-hasan@mu.edu.iq	
716. Course Objectives	
Course Objecti	• **The student recognizes the importance of the concept of work ethics.** • **The student learns about the importance of ethics to society**
717. Teaching and Learning Strategies	
Strategy	1-Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons 5- Scientific trips 6 - Self-learning method

718. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	**The concept of work ethics**	Professional ethics	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**The importance of ethics in genera**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
the third	2	**The importance of ethics for individual**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
the fourth	2	**The importance of ethics for society**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Fifth	2	**Ethics required in employers**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Sixth	2	**Reasons for the decline in work eth**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Seventh	2	**Patterns of behavior and ethics work**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Eighth	2	**Types of corruption according to field in which it arose**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Ninth	2	**Corruption according to the affilia of the individuals involved corruption**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
The tenth	2	**Manifestations of administrative financial corruption**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Eleventh	2	**The ethics of the teaching profes and its impact on the personality performance of the educator**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**
Twelfth	2	**Sources of teaching ethics**	Professional ethics	**Explanation, presentation of the m and lecture**	**the exam**

719. Course Evaluation

1-Theoretical tests	25
2- Practical tests	15
3- Reports and studies	10
4- Final exam	50

720. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Ministry of Higher Education curriculum
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	.