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

2025-2024

Academic Program Description Form

University Name: Al-Muthanna University

Faculty/ Institute: Agriculture College

Scientific Department: Department of Combating Desertification

Academic or Professional Program Name: Bachelor of Agricultural Sciences

Final Certificate Name: Bachelor of Agricultural Sciences

Academic Preparation Date: 1-10-2024

File Completion Date: 1-11-2024

جامعة المثنى
كلية الزراعة
قسم
مكافحة التصحر

Signature:

Head of Department Name:

Prof. Dr. Ghanem Bahlol Noni

Date: 11-3-2025

Signature:

Scientific Associate Name:

Prof. Dr. Hanoon Nahi Kadhum

Date: 12-3-2025

This file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and Performance Department:

Ass. Prof. Dr. Saad Kadhum Jabbar

Date: 13-3-2025

Signature:

Approval of the dean

Ass. Prof. Dr. Haider Abdul-Hussain Muhsen

Approval of the Dean

1. Program Vision

The Department of Desertification Combat vision is to be a global leader in education and research dedicated to combating desertification and fostering sustainable environmental practices. The Department of Desertification Combat envisions a world where knowledge, innovation, and community engagement converge to mitigate the impacts of desertification and promote ecological resilience

2. Program Mission

The mission of the Department of Desertification Combat is to advance education, research, and outreach efforts that empower individuals to understand, combat, and adapt to the challenges posed by desertification. Through a multidisciplinary approach, we aim to produce graduates equipped with the knowledge and skills to make significant contributions to environmental conservation and sustainable land management.

3. Program Objectives

1. Provide high-quality academic programs that instill a deep understanding of the causes and consequences of desertification.
2. Foster critical thinking and problem-solving skills to address complex environmental challenges.
3. Conduct innovative research to advance the understanding of desertification processes and develop effective solutions.
4. Collaborate with national and international partners to contribute to the global body of knowledge on desertification.
5. Engage with local communities affected by desertification, providing knowledge and support for sustainable land use practices.
6. Collaborate with governmental and non-governmental organizations to implement community-based initiatives for desertification combat.
7. Integrate modern technologies and remote sensing tools in research and educational practices to enhance monitoring and mitigation efforts.
8. Equip students with the skills to leverage technology for sustainable land management.

4. Program Accreditation

No the program have not program accreditation.

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	8	11	%8	
College Requirements	18	49	%41	
Department Requirements	26	73	51%	
Summer Training				
Other			%100	

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First year / First semester	U015101	Democracy and Human Rights	2	–
	U015102	Computers applications	–	3
	0C15101	Principles of field crops	2	3
	0C15102	Principles of soil	2	3
	0015101	Engineering Drawing	1	3
	0015102	Botany	2	3
Second semester	U025101	English language	2	–
	U025102	Arabic language	2	–
	0C25101	Principles of Chemistry	2	3

	0C25102	Principles of animal production	2	3	
	0025101	Land geology	2	3	
	0025102	Desert environment	2	3	
Second year / first semester	0015201	Micro climate	2	–	
	0C15201	Principles of animal production	2	3	
	0C15202	Agricultural machinery and equipment	2	3	
	U015201	Computer applications	–	3	
	0C15203	Principles of microbiology	2	3	
	0015202	Farm desert lands	2	3	
	U015202	English language	2	3	
Second semester	0C25201	Plant Protection Principles	2	3	
	0025201	Meteoric weather	2	–	
	0C25202	Pasture management	2	3	
	0025202	Land settlement and amendment	2	3	
	U025201	Arabic Language	2	–	
	0C25203	Agricultural extension principles	2	–	
	U025202	Computer Applications 2	–	3	
Third year/ first semester	0015301	Hydrology	2	3	
	0015302	Plant Physiology	2	3	
	0015303	Desertification	2	–	
	0C15301	The economics of natural resources	2	–	

	0C15302	Design and analysis of experiments	2	3	
	0015304	Soil, Water and Plant Analysis	2	3	
	0015305	Soil Physics	2	3	
	U015301	English language	2	–	
Second semester	0025301	Irrigation and drainage technologies	2	3	
	0025302	Soil fertility	2	3	
	0025303	Desert environment	2	–	
	0025304	Remote Sensing	2	3	
	0025305	Soil chemistry	2	3	
	0025306	Soil, Water and Plant Relationships	2	3	
	0025307	Water Harvesting	2	–	
Fourth year/first semester	0015401	Water quality	2	3	
	0015402	Sustainable development in desert	2	–	
	0015403	Groundwater management	2	3	
	0015404	Geographic information systems	2	3	
	0015405	Soil Microbiology	2	3	
	0015406	Graduated research project	2	–	
	U015401	English language	2	–	
	0015407	Environmental stress	2	3	
Second semester	0025401	Salinity and reclamation of desert soils	2	3	
	0025402	Cattle production	2	3	

	0025403	Desert Soil Management	2	3	
	0025404	Wind and water erosion	2	3	
	0025405	Seminars	–	1	
	0025406	Graduated research project	1	–	
	U025401	Professional ethics	1	–	
	0025407	Soil survey and Classification	2	3	

8. Expected learning outcomes of the program

Knowledge	
Learning Outcomes 1	Learning Outcomes Statement 1
Skills	
Learning Outcomes 2	Learning Outcomes Statement 2
Learning Outcomes 3	Learning Outcomes Statement 3
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies

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

10. Evaluation methods

Implemented at all stages of the program in general.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer

Professional Development
Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

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

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan

1- Conduct a comprehensive needs assessment to identify emerging trends, challenges, and opportunities in the field of desertification combat.
2- Analyze industry demands, technological advancements, and changes in environmental policies that may impact the program.
3- Engage with faculty, students, industry professionals, and community stakeholders to gather input on

program strengths, weaknesses, and areas for improvement.

4- Form advisory committees or forums to ensure ongoing collaboration and feedback.

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Human Rights and Democracy**			**Module Delivery**	
Module Type	**Basic learning activities**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UM-103				
ECTS Credits	**1**				
SWL (hr/sem)	**50**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	All		**College**	College of Agriculture	
Module Leader	Hussein ali hadhood		**e-mail**	hussain.hadhood@mu.edu.iq	
Module Leader's Acad. Title	assistant teacher		**Module Leader's Qualification**		
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. During the academic year, students learn the basics of human rights and democracy, including their rights, how to defend them legally, and their domestic and international guarantees. 2. Gain knowledge in the field of democracy, its various systems, and their impact on human rights. 3. Develop students' personalities and enhance their awareness of democratic political systems, their details, and how to apply them in practice. They also learn the importance of being active in society by respecting the rights of others, 4.knowing that rights and freedoms end where their own rights and freedoms

	begin, and fulfilling their duties rather than merely acquiring rights. .Promote a culture of peace based on justice and equality .
Module Learning Outcomes	1. Empowering the student to understand the basics of defending their rights and the rights of others, and their importance to them and to society in general, as well as to understand the limits of each individual's rights and freedoms. 2. Empowering the student to participate politically by understanding the importance of participating in elections and the impact of this participation on the course of elections and the subsequent formation of government. 3. Educating the student about the guarantees of their rights and freedoms and their sources. 4.Understanding the difference between rights and freedoms . 5. Educating the student about the scientific concept of democracy, its roots, types, and forms. 6. Learning how the democratic system affects human rights and the relationship between them. 7. Educating the student about the necessity of being an active citizen in society, as well as understanding the conditions of the voter and the conditions of the candidate for elections. 8. Understanding electoral systems and which is better. 9. Educating the student about international human rights law and a brief knowledge of international organizations and their mechanisms of operation, such as the United Nations, the Red Cross, and others
Indicative Contents	Part One - Definition of Human Rights and Human Rights in Ancient Civilizations (Definition of rights, definition of human beings, and understanding of the importance of human rights for individuals and society, as well as a study of human rights in civilizations such as the Egyptian, Iraqi, Greek, and Roman civilizations) (4 hours) Part Two: Definition of Human Rights in the Divine Religions, the Most Important of which is Islam (2 hours) Sources of Human Rights Include (International sources such as the Universal Declaration of Human Rights and the two International Covenants, and Regional Sources including Regional Agreements such as the European and American Conventions and the Constitution) (2 hours) Human Rights Guarantees (such as Constitutional and Legal Guarantees) (2 hours) International and Regional Human Rights Agreements (2 hours) Public Freedoms and Their Types and Comparisons Between Them (2 hours) The Future of Human Rights, Globalization, and Human Rights (2 hours) Definition, History, and Types of Democracy (Study of the definition, origin, and development of democracy, its principles, and types such as direct and indirect democracy, presidential and parliamentary systems) (6 hours) Definition of elections and their conditions, types of electoral systems, and

	definition of the House of Representatives (6 hours) The Relationship Between Democracy and Human Rights (2 hours)

Learning and Teaching Strategies	
Strategies	1- Increasing students' awareness of the importance of knowing their rights and duties toward society and the relationship between human rights and the democratic system. 2- General education in a range of fields, including legal, political, and social, and enhancing students' self-confidence by linking theoretical .material to practical reality.

Student Workload (SWL)			
Structured SWL (h/sem)	**33**	**Structured SWL (h/w)**	**2.2**
Unstructured SWL (h/sem)	**17**	**Unstructured SWL (h/w)**	**1.1**
Total SWL (h/sem)	**50**		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	**2**	**15% (10)**	**5 and 10**	**LO #1, #2 #,3,and #6 #7#8**
	Assignments	**2**	**10% (10)**	**2 and 12**	**LO #3, #4 and #6, #7**
	Projects / Lab.				
	Report	**1**	**15% (10)**	**13**	**LO #5, #8 and #9**
Summative assessment	**Midterm Exam**	**2hr**	**10% (10)**	**7**	**LO #1 - #7**
	Final Exam	**3hr**	**50% (50)**	**16**	**All**
Total assessment			**100% (100 Marks)**		

Delivery Plan (Weekly Syllabus)	
	Material Covered

Week 1	An introductory lecture on the subject and its importance.
Week 2	Definition of right, human being, human rights, and the importance of human rights. Human rights in the Islamic religion and ancient civilizations.
Week 3	International, regional, and local sources of human rights.
Week 4	Constitutional and legal guarantees of human rights and guarantees of human rights at the international level.
Week5	Human rights guarantees in Islam.
Week 6	The role of regional organizations in protecting human rights.
Week 7	Characteristics of human rights, definition of public freedoms, their types, and comparison between them and rights.
Week 8	International human rights law, international humanitarian law, and the International Committee of the Red Cross.
Week 9	The future of human rights and ways to develop them.
Week 10	Globalization and human rights.
Week 11	Definition of democracy, its historical development, and its principles.
Week 12	Democracy between universality and particularity.
Week 13	Forms of democracy / direct democracy.
Week 14	Semi-direct democracy and representative democracy / Pillars of the representative system / Forms of the representative system.
Week 15	The parliament and its types / Election and its conditions / Electoral college.
Week 16	Organizing the election process / Defining electoral districts / Electoral lists / Candidates / Electoral campaign / Voting. Electoral systems. The relationship between democracy and human rights and how they influence and are influenced by each other. Final exam

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Human Rights, Children, and Democracy / by Maher Saleh Allawi, Riyad Aziz Hadi, Ali Abdul Razzaq Muhammad, and others / Al-Atik / Beirut / 2009	yes

Recommended Texts	Abbas Al-Dulaimi / Human Rights: Theory and Practice Fakhri Rashid, Salah Yassin / International Organizations / Al-Atik Book Industry / Baghdad Issam Al-Attiya / Public International Law / Legal Library / Baghdad / 2012	no
Websites		

Grading Scheme				
Group	**Grade**	**Evaluation**	**Marks %**	**Definition**
Success Group (50 - 100)	**A**	Excellent	90 – 100	Outstanding Performance
	B	Very Good	80 – 89	Above average with some errors
	C	Good	70 – 79	Sound work with notable errors
	D	Satisfactory	60 – 69	Fair but with major shortcomings
	E	Sufficient	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX**	Fail	(45-49)	More work required but credit awarded
	F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information		
Module Title	**Computer Application**	**Module Delivery**
Module Type	**Basic learning activities**	☒ **Theory**

Module Code	**UNI-004**			☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	1		**Semester (s) offered**	2	
Administering Department	All Departments		**College**	**College of Agriculture**	
Module Leader			**e-mail**		
Module Leader's Acad. Title	Assistant lecturer		**Module Leader's Qualification**	Master english language/ Linguistics	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with Other Modules			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	
Module Aims, Learning Outcomes, Indicative Contents and Brief Description			
Module Aims	1- Understand the concept of computer operating systems.		
Module Learning Outcomes	2- Understand applications and software.		
Indicative Contents	3- How to use a computer and manage applications		
Course Description	1- Understand the concept of computer operating systems.		

Learning and Teaching Strategies	
Strategies	Headway's trusted methodology combines solid grammar and practice, vocabulary development, and integrated skills with communicative role-plays and personalization. Authentic material from a variety of sources enables students to see new language in context, and a range of comprehension tasks, language and vocabulary exercises, and extension activities practice the four skills. 'Everyday English' and 'Spoken grammar'

	sections practice real-world speaking skills, and a writing section for each unit at the back of the book provides models for students to analyze and imitate.

Student Workload (SWL)			
Structured SWL (h/sem)	**33**	**Structured SWL (h/w)**	**2**
Unstructured SWL (h/sem)ل	**17**	**Unstructured SWL (h/w)**	**1.1**
Total SWL (h/sem)	**50**		

Module Evaluation					
		Time (hr)	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	**2**	**5% (5)**	**5, 10, 12, 15**	**All**
	Assignments	**6**	**20% (20)**	**2, 4, 6, 8, 10, 12**	**LO # 1, 3, 4, 5 and 6**
	Seminars	**2**	**5% (5)**	**Continuous**	**LO # 1-5**
Summative assessment	**Midterm Exam**	**2**	**20% (20)**	**7**	**LO # 1-3**
	Final Exam	**3**	**50% (50)**	**16**	**All**
Total assessment			**100% (100 Marks)**		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	A general introduction to operating systems, types of operating systems, their functions, operating system versions, Windows 7 operating system
Week 2	Computer hardware components, computer software components
Week 3	Desktop and its components, Start menu, taskbar, customization, notification area
Week 4	Files and folders, deleting, copying and pasting, cutting
Week 5	Exam
Week 6	Programs and applications, windows and operations
Week 7	Shortcut icons, search
Week 8	Desktop wallpapers, Control Panel

Week 9	Office programs, Microsoft Word, its features and operation
Week 10	General settings, saving settings, opening files
Week 11	Exam
Week 12	Office programs, Microsoft Excel, its features and operation
Week 13	General settings, saving settings, opening files
Week 14	Excel program functions, function structure, function insertion method
Week 15	Practical applications

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	New Headway Beginner, by lizand john soars	Yes
Websites	https://www.learnenglish.de/ https://www.englishgrammar.org/ https://www.phrasebank.manchester.ac.uk/	

Grading Scheme

Grade	Evaluation	Marks %	Definition
A	Excellent	90 – 100	Outstanding Performance
B	Very Good	80 – 89	Above average with some errors
C	Good	70 – 79	Sound work with notable errors
D	Satisfactory	60 – 69	Fair but with major shortcomings
E	Sufficient	50 – 59	Work meets minimum criteria
FX	Fail	(45-49)	More work required but credit awarded
F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information					
Module Title	Principle of crops			**Module Delivery**	
Module Type	C			☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	AGR002				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		**Module Level**		**Semester of Delivery**	1
Administering Department		**Field Crops Department**		**College**	Agriculture
Module Leader	Dr. Shaima Ibrahim Mahmoud			**e-mail**	Shaimaaibrahim@mu.edu.iq
Module Leader's Acad. Title		**Module Leader's Acad. Title**		**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr. Shaima Ibrahim Mahmoud			e-mail	Shaimaaibrahim@mu.edu.iq
Peer Reviewer Name		**Prof. Dr. Ghanem Bahloul Nouni**		**e-mail**	ghanem-bahlol@mu.edu.iq
Scientific Committee Approval Date		**01/10/2024**		**Version Number**	1.0

Relation with other Modules			
Prerequisite module	none	**Semester**	-
Co-requisites module	none	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	- Study of the most important field crops in the world - Includes knowledge of the distribution of each crop in different regions of the world - Knowledge of the economic importance of field crops - Identify the methods of growing each crop and the factors affecting its productivity - Study the environmental conditions suitable for growing each crop Methods used in storing and marketing important field crops worldwide -
Module Learning Outcomes	A- Cognitive Objectives - The student will identify the most important field crops in Iraq and the world. - The student will classify crops according to their environmental needs. - The student will distinguish between crops and their importance in human and animal nutrition. - The student will know the scientific methods used to increase crop productivity. - The student will evaluate the importance of each field crop and which of them are best for investment in Iraq. B- Program Skill Objectives - Introduce the student to the economic importance of crops. - The student will be able to evaluate the most important field crops in Iraq and the world. - Teach the student the appropriate environmental conditions for each crop.
Indicative Contents	1- Explain and clarify 2- Lecture method 3- Student groups 4- Practical lessons in agricultural fields 5- Scientific trips to learn about grain crops in Iraq

Learning and Teaching Strategies

Strategies	Developing the student's ability to identify the most important field crops and their impact on environmental conditions, and to identify and know their types.

Student Workload (SWL)

Structured SWL (h/sem)	78	**Structured SWL (h/w)**	9
Unstructured SWL (h/sem)	72	**Unstructured SWL (h/w)**	2
Total SWL (h/sem)	**175**		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO 1, 2
	Assignments	2	10% (10)	2 and 12	LO 3, 4
	Projects / Lab.	1	10% (10)	Continuous	LO 1-7
	Report	1	10% (10)	13	LO 1-7
Summative assessment	**Midterm Exam**	1hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks		

Delivery Plan (Weekly+Lab Syllabus)

	Material Covered
Week 1	Introduction to field crops: definition, origin, and development.

Week 2	Classification of field crops according to families, planting season, use, etc. (description of the most important plant families).
Week 3	Environmental factors and their relationship to crop growth (climatic factors).
Week 4	Light and its importance in growth.
Week 5	First month exam: Temperature and its relationship to crop distribution.
Week 6	Wind and its effect on crops.
Week 7	Mid-term exam.
Week 8	Distinguishing between the Poaceae and Legume families.
Week 9	Soil factors (soil structure).
Week 10	Soil texture, soil salinity, soil acidity.
Week 11	Factors in field crop distribution and spread.
Week 12	Classification of crops according to heat requirements.
Week 13	Summer crops.
Week 14	Winter crops.
Week 15	Crops and food security.
Week 16	Final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts		yes
Recommended Texts	Field Crop Management and Production Principles of Field Crops	Recommended Books and References Scientific Journals, Reports
Websites	Electronic references, websites, virtual library, library websites in some international universities	

Grading Scheme

Group	Grade	Evaluation	Marks %	Definition
Success Group (50 - 100)	**A**	Excellent	90 – 100	Outstanding Performance
	B	Very Good	80 – 89	Above average with some errors
	C	Good	70 – 79	Sound work with notable errors

	D	Satisfactory	60 – 69	Fair but with major shortcomings
	E	Sufficient	50 – 59	Work meets minimum criteria
Fail Group	**FX**	Fail	(45-49)	More work required but credit awarded
(0 – 49)	**F**	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information			
Module Title	**Principle of soil science**	**Module Delivery**	
Module Type	**Core**	☒ **Theory**	
Module Code	**AGR-002**	☐ **Lecture**	
ECTS Credits	**6**	☒ **Lab**	
SWL (hr/sem)	**150**	☐ **Tutorial**	
		☐ **Practical**	
		☐ **Seminar**	
Module Level	1	**Semester of Delivery**	1
Administering Department	**Soil and water resources**	**College**	Agriculture
Module Leader	Dr. Ghanem Bahloul Nouni	**e-mail**	ghanem-bahlol@mu.edu.iq

Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	PhD
Module Tutor		**e-mail**	
Peer Reviewer Name	Dr. Ghanem Bahloul Nouni	**e-mail**	ghanem-bahlol@mu.edu.iq
Scientific Committee Approval Date	2024/10/10	**Version Number**	1.0

Relation with other Module			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	-Introducing students to the importance of soil science Introducing students to the basic components and properties of soil Using laboratory equipment to determine soil properties Introducing students to the branches of soil science
Module Learning Outcomes	Enabling students to understand and know how soil is formed Be able to use laboratory equipment Understand soil classes theoretically and experimentally Study soil chemical properties Understand modern methods of sample collection Understand and compare soil properties

	Be able to determine soil fertility Learn how to classify soil Learn how to classify land Understand how to manage land
Indicative Contents	The guidance content includes the following: Theoretical Section What is Soil Principles - Introduction - Definition - Branches of Soil * Principles Soil Formation and Composition * Physical Properties * Soil Water Colloids and Soil Chemical Properties * Soil Salinity and Alkalinity and Reclamation of Salt-Affected Soils * Soil Fertility * Soil Biological Properties Soil Organic Matter Soil Classification and Management in Iraq * Practical Section: Soil Sample Collection Moisture Content Measurement Soil Apparent and True Density Measurement and Porosity Measurement Soil Percentage Estimation Soil Texture Determination Soil Salinity and Reactivity Measurement

	Soil Organic Matter Estimation Soil Organic Matter Estimation Soil Mineral Carbonate Content Estimation

Learning and Teaching Strategies	
Strategies	The strategies are based on the following: -Forming groups that interact with each other to interpret and analyze soil phenomena -Using laboratory experiments -Scientific field trips -Using reverse lectures to deliver scientific information -Building students' leadership skills in presenting information and building scientific confidence

Student Workload (SWL)			
Structured SWL (h/sem	78	**Structured SWL (h/w)**	5
Unstructured SWL (h/sem)	72	**Unstructured SWL (h/w)**	8
Total SWL (h/sem)	150		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	4 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction - Branches of Soil Science
Week 2	Soil Formation and Composition
Week 3	Physical Properties
Week 4	Soil Texture
Week 5	Soil Water
Week 6	Soil Chemical Properties
Week 7	Midterm Exam
Week 8	Soil Colloids
Week 9	Soil Salinity and Alkalinity

Week 10	Reclamation of Salt-Affected Soils
Week 11	Soil Biological Properties
Week 12	Soil Fertility
Week 13	Soil Organic Matter
Week 14	Soil Classification in Iraq
Week 15	Land Management and Use in Iraq

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Explaining soil sample collection methods
Week 2	Identifying laboratory equipment and materials
Week 3	Measuring soil moisture content
Week 4	Measuring soil bulk and true density and porosity
Week 5	Estimating percentages of sand, clay, and silt and determining soil texture
Week 6	Measuring aggregate stability
Week 7	Measuring water conductivity
Week 8	Measuring soil salinity and soil pH
Week 9	Estimating some dissolved positive ions in soil solution
Week 10	Estimating some dissolved negative ions in soil solution
Week 11	Estimating soil lime and gypsum content
Week 12	Estimating soil organic matter
Week 13	Estimating some readily available elements in soil
Week 14	Estimating total numbers of fungi and bacteria in soil
Week 15	Excavating and describing a soil sample

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Principles of Soil Science - Abdullah Najm Al-Ani	Yes
Recommended Texts	Daniel Hillel. 1990. Introduction to Soil Physics. Translated by Dr. Mahdi Ibrahim Awda Ahmed Al-Zubaidi. 1989. Soil Salinity Walid Al-Aqidi and Shaker Al-Issawi. 1989. Soil Morphology	Yes
Websites		

Grading Scheme

Group	Grade	Evaluation	Marks %	Definition
Success Group (50 - 100)	**A**	Excellent	90 – 100	Outstanding Performance
	B	Very Good	80 – 89	Above average with some errors
	C	Good	70 – 79	Sound work with notable errors
	D	Satisfactory	60 – 69	Fair but with major shortcomings
	E	Sufficient	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX**	Fail	(45-49)	More work required but credit awarded
	F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information		
Module Title	**Engineering drawing**	**Module Delivery**
Module Type	**Core**	☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**

Relationship to Other Subjects

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	-Introducing students to the importance of engineering drawing -Teaching students the basic principles of engineering drawing -Understanding the importance of engineering drawing for engineers and its applications -Representing objects using multiple projection systems and methods for drawing solids
Module Learning Outcomes	-Enabling the student to understand and know how to use engineering drawing tools. -Be able to distinguish the various lines used in engineering drawing.

	-Learn how to perform engineering operations. -Learn how to project point-to-point, line-segment projection, and plane surfaces. -Learn how to project vertically (three-dimensional projections). -Learn how to draw a full section and a half-cut projection. -Learn how to draw a sector parallel to the basic planes. -Learn how to draw three-dimensional drawings and their conditions. -Learn how to draw isometric drawings. -Learn how to draw parallelograms.
Indicative Contents	The instructional content includes the following: -Theoretical section -What is engineering drawing -Types of engineering drawing -The benefits of engineering drawing -What are engineering drawing tools? -Types of lines and some important engineering operations -Projections (point projection, line segment projection, plane projection, and the three vertical projections) -Sections (full section and half-cut projection) -Structured drawing and its types. Practical Section: -Learn about engineering drawing tools, how to use them, and how to install the board -Learn about line types -Learn about some important engineering operations and special exercises on this topic -Learn how to draw a projection of a point, a straight line, and a

	plane surface -Exercises on projections and how to correctly derive them -Derive the missing projection when two projections are available Exercises on full-section and half-section projectionsExercises on how to draw solid shapes and isometric drawings
Learning and Teaching Strategies	
Strategies	The strategies are based on the following: -Forming groups that interact with each other to learn engineering drawing -Performing classroom exercises in the studio -Completing homework -Using all available teaching tools, such as the whiteboard, data show, and drawing board -Building a leadership spirit among students in presenting information and building academic confidence

Student Workload (SWL)			
Structured SWL (h/sem)	79	**Structured SWL (h/w)**	5
Unstructured SWL (h/sem)	121	**Unstructured SWL (h/w)**	8
Total SWL (h/sem)	200		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Lab.	1	10% (10)	Continuous	All

	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	4 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Engineering Drawing / Engineering Drawing Tools and Their Use
Week 2	Engineering Line / Drawing Board Layout (Table) / Types of Lines and Dimensions
Week 3	Arcs and Tangents
Week 4	Ellipse
Week 5	Full Section
Week 6	Vertical Projection of Points, Straight Lines, and Planes
Week 7	Vertical Projection of Geometric Objects (3D Projections)
Week 8	Full Section
Week 9	Half-Trunked Projection
Week 10	Parallel Sections to Basic Planes and Their Applications
Week 11	Exercises on Full Sections and Half-Trunked Projections
Week 12	Solid Drawing and Its Conditions
Week 13	Solid Drawing for Solid Drawing
Week 14	Isometric Drawing
Week 15	Scale Drawing using the Parallel Plane Method

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	An explanation of how to use engineering drawing tools.
Week 2	Learn how to mount and plan the board and draw a table.
Week 3	Learn the types of lines used.
Week 4	Learn some engineering operations on straight lines.
Week 5	Geometric shapes: triangle/square/pentagon/hexagon/octagon.
Week 6	Angles, tangents, and methods for drawing parabolas.
Week 7	Projection theory/Multiple projection system.
Week 8	Projections (shapes with flat surfaces).
Week 9	Projections (shapes with flat and inclined surfaces).
Week 10	Projections (shapes with flat and inclined surfaces, arcs, and holes).
Week 11	Full section and half-cut projection.
Week 12	Structured drawing: Introduction/Structured drawing methods.
Week 13	Isometric drawing (flat surfaces).
Week 14	Isometric drawing.
Week 15	Methods for placing dimensions on projections and isometric drawing.

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Engineering Drawing for Agricultural College Students - Dr. Eng. Natiq Sabri Hassan University of Mosul	Yes

Recommended Texts	Engineering Drawing - Abdul Rasoul Al-Khafaf 1990 University of Technology	Yes As pdf
Websites		

Grading Scheme				
Group	**Grade**	**Evaluation**	**Marks %**	**Definition**
Success Group (50 - 100)	**A**	Excellent	90 – 100	Outstanding Performance
	B	Very Good	80 – 89	Above average with some errors
	C	Good	70 – 79	Sound work with notable errors
	D	Satisfactory	60 – 69	Fair but with major shortcomings
	E	Sufficient	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX**	Fail	(45-49)	More work required but credit awarded
	F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information		
Module Title	**botany**	**Module Delivery**
Module Type	**Core**	☒ **Theory**
Module Code	**DEC-112**	

ECTS Credits	**7**	☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
SWL (h/Sem)	**175**		

Module Level	1	**Semester of Delivery**	1
Administering Department	**Combating desertification**	**College**	**Agriculture**
Module Leader	**Imad Abdel Karim Muhammad Reda**	**e-mail**	**emad.aldahab@mu.edu.iq**
Module Leader's Acad. Title	**assistant professor**	**Module Leader's Qualification**	**PhD**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Ghanem Bahlol Noni**	**e-mail**	**ghanem-bahlol@mu.edu.iq**
Scientific Committee Approval Date	**10/**09/2024	**Version Number**	1.0

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	Learn the basic concepts of botany and its relationship to other sciences Learn the importance of plants in the survival and continuity of life Study the plant cell and its characteristics Learn about seed germination and water relationships in plants

	Learn about the different plant organs, morphologically and anatomically Learn about vegetative and reproductive characteristics Plant tissues Study monocotyledonous and dicotyledonous plants
Module Learning Outcomes	-Identify plants and their relationship to life -Identify plant cells and how they differ from animal cells -Identify plant parts morphologically and anatomically -Identify seed germination and water relationships in plants
Indicative Contents	-Identify plant organs morphologically -Dissect plant organs, understand their structures, and identify tissues -Identify water relationships in plants

Learning and Teaching Strategies	
Strategies	Explanation and clarification Lecture method - Student groups - Practical lessons in agricultural fields - Field trips to learn about the most important plants found in Iraq and their families - Self-study method -

Student Workload (SWL)			
Structured SWL (h/Sem)	79	**Structured SWL (h/w)**	5
Unstructured SWL (h/Sem)	96	**Unstructured SWL (h/w)**	6
Total SWL (h/Sem)	175		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	6,12	LO #1, 2, 3,4 and 5
	Assignments	1	10% (10)	9	LO # 2 and 6
	Lab	2	10% (10)	5,15	LO # 1,4, and 5
	Seminar	1	10% (10)	13	All
	Midterm Exam	2hr	10% (10)	7	LO # 1-3
Summative assessment	**Final Exam**	4hr	50% (50)	16	All
			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Botany and Its Development
Week 2	The Plant Cell and Its Basic Concepts

Week 3	Living Components of the Plant Cell
Week 4	Plant Tissues
Week 5	Seed Germination and Water Relationships in Plants
Week 6	Root Morphology and Anatomy
Week 7	Stem Morphology and Anatomy
Week 8	Leaf Morphology and Anatomy
Week 8	Midterm Exam
Week 9	Flower Morphology and Anatomy
Week 10	Pollination, Fertilization, and Fruit Setting
Week 11	Metabolism and Photosynthesis
Week 12	Fruits
Week 13	Plant Organ Functions (Respiration, Transpiration, Absorption)
Week 14	Plant Classification Methods
Week 15	Second Month Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Microscope: Parts and Function
Week 2	Preparing Temporary Slides
Week 3	Preparing Permanent Slides
Week 4	Components of Nonliving Cells

Week 5	Types of Roots
Week 6	Types of Stems
Week 7	Types of Leaves
Week 8	Types of Flowers
Week 9	Midterm Exam
Week 10	Types of Fruits
Week 11	Seeds and Germination
Week 12	Root Sections
Week 13	Stem Sections
Week 14	Leaf Sections
Week 15	End-of-Term Exam

Learning and Teaching Resources

	Text	**Available in the Library?**
Required Texts	Botany Illustrated - Introduction to Plants, Major Groups	No
Recommended Texts	General Plant Fundamentals, Mohamed Abdel Wahab El Naghi, Wafaa Mahrous Amer, Adel Ahmed Fathy	No
Websites	Plant taxonomy and Anatomy	No

Grading Scheme

Group	**Grade**	**Evaluation**	**Marks %**	**Definition**

Success Group (50 - 100)	**A**	Excellent	90 – 100	Outstanding Performance
	B	Very Good	80 – 89	Above average with some errors
	C	Good	70 – 79	Sound work with notable errors
	D	Satisfactory	60 – 69	Fair but with major shortcomings
	E	Sufficient	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX**	Fail	(45-49)	More work required but credit awarded
	F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

English Language MODULE DESCRIPTION FORM

Module Information					
Module Title	**English Language**			**Module Delivery**	
Module Type	**S**			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UNI001**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	**1**		**Semester of Delivery**	**2**	
Administering Department	**Combating desertification**		**College**	**Agricuture**	
Module Leader	Safaa Abdel Hassan Hamdan		**e-mail**	safaa.hamdan@mu.edu.iq	
Module Leader's Acad. Title	Teacher		**Module Leader's Qualification**	MS.C	

Module Tutor	Safaa Abdel Hassan Hamdan	**e-mail**	safaa.hamdan@mu.edu.iq
Peer Reviewer Name	**Prof. Dr. Ghanem Bahloul Nouni**	**e-mail**	**ghanem-bahlol@mu.edu.iq**
Scientific Committee Approval Date	2024/09/01	**Version Number**	1.0

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	to enable the learner to communicate effectively and appropriately in real life situation: b. to use English effectively for study purpose across the curriculum; c. to develop interest in and appreciation of Literature; d. to develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing; e. to revise and reinforce structure already learnt.
Module Learning Outcomes	to develop the students' abilities in grammar, oral skills, reading, and study skills 1. Students will increase their awareness of correct usage of English grammar in writing and speaking. 2. Improve their speaking ability in English both in terms of fluency and comprehensibility. 3. Receive feedback on their performance through oral presentations. 4. Increase their reading speed and comprehension of academic articles. 5. Improve their reading fluency skills through extensive reading. 6. Expand their vocabulary by keeping a vocabulary journal. 7. Strengthen their ability to write academic papers, essays and summaries using the process approach.
Indicative Contents	The course aims to develop communicative competence in English for intercultural contexts by teaching language items and communicative strategies essential for such scenarios, while at the same time giving students ample chances to output such items. The aims of this course are reflected in the content, which contains several themes, such as cultural awareness, intercultural awareness and English as a global language. Indicative content includes understanding the uniqueness of your own culture and other cultures, as well as being aware of the role culture plays in communication in English as a global language. In addition, this course allows for discussions about what it means for English to be a global language of communication and how misunderstandings and miscommunications when using English occurs. The course also includes practice in the pronunciation features that help improve intelligibility in intercultural contexts, namely the Lingua Franca Core.

Learning and Teaching Strategies	
Strategies	1. Cultivate relationships Speaking with students to know each student, helps you understand who they are, where they come from and, perhaps, gain some insight into what teaching and learning styles are most effective for them. 2. Teach language skills across all curriculum topics 3. Speak slowly and be patient: Speaking in a slower, measured cadence Being a bit more aware of your pronunciation 4. Prioritize "productive language" 5. Using a variety of methods to engage learning 6. Using visual aids by the use of pictures, diagrams, charts and other visual tools. 7. Coordinate with the ESL teacher: Such discussions can yield insights into individual students and their learning styles or challenges; they can also be helpful for sharing information about curriculum topics, potentially providing ESL teachers with ideas for highly relevant vocabulary words that can reinforce academic lessons. 8. Pre-teach new vocabulary words that may be unfamiliar to ELLs, or even to give them a copy of the article or link to the material ahead of time. 9. Build in some group work. 10. Respect moments of silence: Many new language learners tend to be a little reticent and quiet, opting for silence over speaking up and saying something "wrong" in a language that is still unfamiliar. Research-based strategies for differentiating instruction to promote student learning

Student Workload (SWL)			
Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2.2
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1.1
Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	3,6,9	LO #1, #7
	Assignments	2	10% (10)	10	LO #3, #4 and #6
	Projects / Lab.	0	0 %		
	Essays	1	10% (10)	14	LO #5
Summative assessment	**Midterm Exam**	2hr	20% (10)	7	LO #1 - #7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Unit-1 (Hello)
Week 2	Unit-2 (Your world)
Week 3	Unit-3 (Personal information)
Week 4	Unit-4 (Family and friends)
Week 5	Unit-5 (It's my life)
Week 6	Unit-6 (Every day)
Week 7	**Mid-term Exam**
Week 8	Unit-7 (Places I like)
Week 9	Unit-8 (Where I live)
Week 10	Unit-9 (Happy birthday)
Week 11	Unit-10 (We had a good time)
Week 12	Unit-11 (we can do it)
Week 13	Unit-12 (Thank you very much)
Week 14	Unit-13 (Here and now)
Week 15	Unit-14 (It's time to go)
Week 16	**final-term Exam**

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Headway. Beginner. Student's Book by Liz and John Soars, 2019.	Yes

Recommended Texts		No
Websites	https://elt.oup.com/student/headway/beg/?cc=global&selLanguage=en	

Grading Scheme

Group	Grade	Evaluation	Marks %	Definition
Success Group (50 - 100)	**A**	Excellent	90 – 100	Outstanding Performance
	B	Very Good	80 – 89	Above average with some errors
	C	Good	70 – 79	Sound work with notable errors
	D	Satisfactory	60 – 69	Fair but with major shortcomings
	E	Sufficient	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX**	Fail	(45-49)	More work required but credit awarded
	F	Fail	(0-44)	Considerable amount of work required

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Course Description Form

Module Information

Module Title	**Arabic Languaage**	**Module Delivery**
Module Type	**Basic**	☒ **Theory** ☐ **Lecture**
Module Code	**UNI-102**	
ECTS Credits	**2**	

SWL (hr/sem)	**50**	☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Level	1	**Semester of Delivery**	1
Administering Department	Combating desertification	**College**	Agriculture
Module Leader	Dr. Ghanem Bahloul Noni	**e-mail**	ghanem-bahlol@mu.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Master
Module Tutor		**e-mail**	
Peer Reviewer Name	Laith Hussein Hassan	**e-mail**	Laithh.alelyawi@uokufa.edu.iq
Scientific Committee Approval Date	2024/09/16	**Version Number**	1.0

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Aims	Reading without intonation Reducing spelling errors Reducing grammatical errors Learning about the history of the Arabic language Introducing students to the features and characteristics of the language of the Holy Quran.
Module Learning	Learn to read without intonation

Outcomes	Ignore spelling errors Understand the history of the Arabic language Learn Arabic grammar Introduce students to the advantages of the Arabic language
Indicative Contents	The origin of the Arabic language, the importance of the Arabic language, the characteristics of Arabic Number and the counted, writing the hamza and its types, the difference between ta' and ha', the extended ta' and the tied ta' in writing The extended and shortened alif, the absolute object, the object in it Punctuation marks and their effect on understanding the text, common errors in the Arabic language Islam's stance on poetry and poets, rhetoric and its types In and its sisters, kana and its sisters

Learning and Teaching Strategies	
Strategies	This is done through giving lectures and problem-solving exercises, in addition to holding discussion groups, conducting debates and poetry competitions, and performing some tasks in the form of articles and speeches in the Arabic language

Student Workload (SWL)			
Structured SWL (h/sem)	33	**Structured SWL (h/w)**	2
Unstructured SWL (h/sem)	17	**Unstructured SWL (h/w)**	1
Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #2
	Assignments	2	10% (10)	2, 12	LO # 1, 5
	Projects	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	All
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	The Origins of the Arabic Language
Week 2	The Importance of the Arabic Language
Week 3	Characteristics of Arabic
Week 4	Number and the Counted
Week 5	Writing the Hamza and Its Types
Week 6	The Difference Between the Ta', the Ha', the Extended Ta', and the Connected Ta' in Writing
Week 7	Midterm Exam
Week 8	The Extended and Shortened Alif

Week 9	The Absolute Object and the Object in It
Week 10	Punctuation Marks and Their Effect on Text Comprehension
Week 11	Common Mistakes in the Arabic Language
Week 12	Islam's Position on Poetry and Poets
Week 13	Rhetoric and Its Types
Week 14	In and Its Sisters
Week 15	can and Its Sisters

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Al-Bayan wa al-Tabyeen, Ibn Malik's Alfiyya	Yes
Recommended Texts	Nahj al-Balagha	No
Websites		

Grading Scheme

Grade	Evaluation	Marks %	Definition
A	Excellent	90 – 100	Outstanding Performance
B	Very Good	80 – 89	Above average with some errors
C	Good	70 – 79	Sound work with notable errors
D	Satisfactory	60 – 69	Fair but with major shortcomings
E	Sufficient	50 – 59	Work meets minimum criteria

FX	Fail	(45-49)	More work required but credit awarded
F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Principles Of Animal Production**			**Module Delivery**	
Module Type	**Core learning activities**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	APD-1201				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level		1	**Semester of Delivery**		**1**
Administering Department		**Animal Production**	**College**	**Agriculture**	
Module Leader	**Dr. Ghanem Bahloul Noni**		**e-mail**	**E-mail:** : ghanem-bahlol@mu.edu.iq	
Module Leader's Acad. Title		**Professor**	**Module Leader's Qualification**		**Ph.D.**
Module Tutor	Dr. Hassan Awad Fazaa		**e-mail**	hassanawied@mu.edu.iq	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Enables the student to gain knowledge: 1. Give an idea of importance of animal prodution, types of farm animals ,animal husbandry. 2. Give an idea of importance of reproduction , nutrition and management 3. Animals Housing and Records
Module Learning Outcomes	1. Familiarity with general information about animal production and its economic and nutritional importance. 2. Discuss the factors affecting production efficiency and how to improve it. 3. Explain and clarify the obstacles facing livestock and ways to improve it. 4. Introducing students to livestock, their types, and how to care for them. 5. Introducing students to dual-purpose cattle and local and international sheep and goat breeds. 6. Defining how to establish and care for a flock of sheep and goats. 7. Defining the specifications of global and local buffalo and their different breeds. 8. We are introducing students to the importance of poultry projects and meat and egg production. 9. Providing an overview of Farm animals feed materials and the process for preparing balanced nutritional rations. 10. Explanation and clarification of health programs for animals, how to prevent diseases and ways to improve the health of animals and increase their productivity. 11. A detailed explanation of the importance of raising calves and heifers and providing the necessary needs for their rearing. 12. A detailed description of the reproductive system of cows and a statement of its importance in the reproductive process, and how to increase the reproductive efficiency of the animal and increase the birth rate. 13. Explain animal breeding and improvement programs and discuss the importance of breeding, selection, and exclusion of weak animals.

	14. A detailed explanation of the importance of camels and the equine species and how to manage and care for them.
Indicative Contents	Indicative content includes the following. 1. Disseminating the culture of livestock's nutritional and economic importance as a major source of agricultural wealth and having a major role in the Country's economy. 2. Following modern methods and techniques in animal management, milking operations, and large animal slaughterhouses. 3. Teaching students the role of successful management (human factor or the breeder himself) of small and large ruminant fields. 4. Spreading the culture of benefiting from animal by-products such as manure waste and animal waste, and benefiting from animals in work. 5. Identifying the types of farm animals and the most important projects related to their breeding. 6. Solving administrative problems in cattle, sheep, and goat breeding fields.

Learning and Teaching Strategies	
Strategies	1. Enabling students to think and analyze topics related to the intellectual framework of the Principles of Animal Production subject 2. Enabling students to think and analyze topics related to animal species and the most important projects related to their breeding. 3. Enabling students to think and analyze topics related to identifying administrative problems in animal fields and working to address them. 4. Enabling students to think and analyze to identify the role of management (the role of the human factor or the breeder himself) in the success of animal fields of various types.

Student Workload (SWL)			
Structured SWL (h/sem)	**78**	**Structured SWL (h/w)**	**5.2**
Unstructured SWL (h/sem)	**97**	**Unstructured SWL (h/w)**	**6.4**
Total SWL (h/sem)	**175**		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.		15% (15)	Continuous	All
	Report		5% (5)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction of importance of animal production.
Week 2	Interrelated animal production & plant production , Sciences related to animal production
Week 3	Capabilities & constraint of animal production in Iraq
Week 4	Breed of dairy & beef cattle
Week 5	Buffaloes + First Exam.
Week 6	Milk production in the world and its influencing factors.
Week 7	Sheep & goat breeding
Week 8	Nutrition requirements, Compound stomach
Week 9	Barns.
Week 10	Reproductive in farm animals . Second Exam
Week 11	Genetic improvement in poultry.
Week 12	Other agricultural animals - camels - their management and care.
Week 13	Third Exam.
Week 14	Other Farm Animals - Horses - Their Management and Care
Week 15	Fish culture & production

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Visit the farm of Agriculture College
Week 2	Lab 2: Observation of field operations
Week 3	Lab 3: Milking cows, learning about the lactation system of cattle and the automatic milking device.
Week 4	Lab 4: Suckling young calves.
Week 5	Lab 5: Scientific Trip.

Week 6	Lab 6: First Exam.
Week 7	Lab 7: Reproductive physiology & Artificial insemination.
Week 8	Lab 8 :Hatching , Selection of hatching eggs.
Week 9	Lab 9: Feedstuffs.
Week 10	Lab 10 Barns.
Week 11	Animal diseases
Week 12	Second Exam
Week 13	Applied in animal management
Week 14	Observation of field operations

Learning and Teaching Resources		
	Text	**Available in the Library?**
Required Texts	Principles of Animal Production. Al-Jalili et.al.).	Yes
Recommended Texts	Basics of animal production, written by A. Dr.. Ahmed Suleiman Mahmoud and A. Dr.. Mahmoud Riyad Al Mahdi (2013).	No
Websites	https://nicehatchincubators.com/the-principles-of-poultry-husbandry/	

Grading Scheme

Grade	Evaluation	Marks %	Definition
A	Excellent	90 – 100	Outstanding Performance
B	Very Good	80 – 89	Above average with some errors
C	Good	70 – 79	Sound work with notable errors
D	Satisfactory	60 – 69	Fair but with major shortcomings
E	Sufficient	50 – 59	Work meets minimum criteria
FX	Fail	(45-49)	More work required but credit awarded
F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Course Description Form

Course Name:
1- **Geology**
Course Code:
Semester / Year:
Fourd
Description Preparation Date:
26\2\2024
Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
Course administrator's name (mention all, if more than one name)
Name:dr.aula saad rasool abokehella Email aula.abokehella@mu.edu.iq
Course Objectives

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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	**The student gets to know the concept of Classification**	**Soil Classification**	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**For the student to know the metheds of Soil Classification**	Classification	**Explanation, presentation of model and lecture**	**the exam**
the third	2	**The student will be familiar with the means of Formation soil**	Classification	**Explanation, presentation of model and lecture**	**the exam**
the fourtl		**The student will be familiar with the I Soil survey**	Classification	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**The student will be familiar with the conditions of soil formation**	Classifiation	**Explanation, presentation of model and lecture**	**the exam**
Sixth	2	**student gets to know the types Rocks**	**Classificatior**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**For the student to recognize the aspects the earth systems**	**Classificatior**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**The student will be familiar with the indicators for determining the effect of Geology**	**Classificatior**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**The student will be familiar with the means of increasing the ability of Fiel survvey**	**Classificatio**	**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 water**	**Classificatio**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	2	**The student will be familiar with irrigati water classification systems**	**Classificatior**	**Explanation, presentation of**	**the exam**

				model and lecture	
Twelfth	2	**The student will learn Fao classificatio**	**Classificatior**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**For the student to become familiar with problems of limestone soils**	**classification**	**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**	**classification**	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	2		**Soil classification**	**Explanation, presentation of model and lecture**	**the exam**

Course Evaluation

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

Learning and Teaching Resources

Required textbooks (curricu books, if any)	11- siol classification dr. Ahmed ALmashedany
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

MODULE DESCRIPTION FORM

Module Information

Module Title	desert environment	**Module Delivery**	
Module Type	**(C) College Requirment**		
Module Code	**DEC-122**		
ECTSCredits	**8**		
SWL(hr./Sem)	**200**		
Module Level	**1**	**semesterof Delivery**	2+1
Administration Department	**Combating Desertifcation**	**Collage**	College of Agricultural Engineering Sciences
Module Leader	**Asst. Prof. Dr. Imad Abdel Karim Muhammad Reda**	**e-mail**	**emad.aldahab@mu.edu.iq**
Module Leader's Acad11tle		**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Scientific Committee Approval Date	**22/9/2024**	**Version Number**	1.0

Relation with other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	The Desert Environment course, offered to students in the Department of Combating Desertification in the College of Agricultural Engineering Sciences, aims to provide students with basic knowledge about the characteristics of desert environments and their environmental and agricultural impacts. Students learn about the climatic and environmental challenges facing deserts and how to cope with the scarcity of natural resources such as water. They are also taught soil conservation strategies and desertification control techniques, including sustainable land management. The course focuses on the study of desert ecosystems, their biodiversity, and how to promote the cultivation of plants suitable for these conditions. Additionally, the course addresses practical methods for developing agricultural projects in desert areas, enhancing environmental awareness and scientific .research skills related to desertification and arid environments
Module Learning Outcomes	Understanding Desert Ecosystems: Students will gain a comprehensive understanding of the .characteristics and functioning of desert ecosystems, including climate, soil, and biodiversity Desertification Control Techniques: Students will be able to apply sustainable land management and desertification control techniques to mitigate the effects of land degradation in arid .environments Water Resource Management: Students will learn how to efficiently manage scarce water resources in desert environments, including the use of innovative irrigation methods and water .conservation Environmental Impact Assessment: Students will develop skills to assess the environmental impact of human activities in desert areas and propose solutions that enhance ecological .balance Practical Agricultural Solutions: Students will be able to design and implement agricultural
Indicative Contents	**This course covers the characteristics of desert environments and their associated ecosystems, with a focus on water resource management and conservation strategies. The causes of desertification and sustainable methods for combating it are addressed, along with a review of the biodiversity of plants and animals adapted to desert conditions. The content also covers**

Learning and Teaching Strategies	
Strategies	Theoretical Lectures: Introducing basic concepts about desert environments and Practical and Field Learning: Conducting field visits to desert areas to study local. soils and plants and applying practical techniques to combat desertification. Project-Based Learning: Assigning students to prepare research projects on sustainable agriculture strategies or the reclamation of degraded lands in desert environments. Group Discussions: Encouraging students to participate in discussions on environmental issues related to desertification and their solutions, which promotes critical thinking. Cooperative Learning: Organizing working groups where students collaborate to solve environmental problems and challenges associated with desert environments

Student Workload (SWL)			
Structured SWL (h/Sem)	78	**Structured SWL (h/w)**	5
Unstructured SWL (h/Sem)	122	**Unstructured SWL (h/w)**	8.1
Total SWL (h/Sem)	200		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10%(10)	4,8,12	(1-3)، (4-7)، (10-11)
	Assignments	2	10%(10)	5,9	(1-4)،(4-8)
	Projects / Lab.	1	15%(15)	continue	all
	report	1	5%(5)	11	all
Summative assessment	Midterm Exam	2hr.	10%	10	1-9
	Final Exam	3hr.	50%	16	all
Total assessment					

Delivery Plan (Weekly Syllabus)

	Material Covered
Week1	Ecology and its Relationship to Other Sciences
Week2	Divisions and Components of Ecology
Week3	Definition of the Desert Environment
Week4	Characteristics of the Desert Environment
Week5	Location of the Desert Environment
Week6	Climate of the Desert Environment
Week 7	Problems of the Desert Environment
Week 9	Applications of Artificial Intelligence in Predicting Climate Change and Analyzing the Desert Environment
Week9	First Exam
Week 10	Plants of the Desert Environment
Week11	Definition of Deserts, Their Types, and Characteristics

Week12	Classification of Iraqi Deserts
Week13	Desert Soils
Week14	Reclamation of Desert Soils
Week15	Artificial Intelligence in Ecosystem Restoration and Identifying Plants Suitable for Desert Environments
Week16	Second Exam

15

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week1	Analyzing desert soil properties
Week2	Measuring desertification rates
Week3	Measuring factors affecting different environments: temperature, wind speed, light, turbidity, evaporation, and current speed
Week4	Cultivating plants adapted to desert environments
Week5	Managing water resources in deserts
Week6	Environmental analysis of desert plants
Week7	Evaluating desert biodiversity
Wee k 8	Exam One
Week9	Analysis of the impact of climate change on deserts
Week10	Soil conservation techniques
Week11	Reintroducing degraded plants
Week12	Analysis of groundwater in deserts
Week13	Preparing small-scale models of desert ecosystems

Week 14	Using modern technologies to combat desertification
Week 15	Exam Two

Learning and Teaching Resources		
	Text	Available In the Library?
Required Texts	The Hot Desert Environment: Written by Dr. Abdul Salam Mahmoud Nouri and Dr. Abdullah bin Mohammed Al-Ansari Development and the Environment in Desert and Arid Lands: Written by Dr. Ibrahim Abdul Bari Badr The Hot Desert Environment: Prepared by Al-Jawhara Al-Shaib	Not available in free education at the college and in the college library

Grading Scheme

Grade	Evaluation	Marks %	Definition
A	Excellent	90 – 100	Outstanding Performance
B	Very Good	80 – 89	Above average with some errors
C	Good	70 – 79	Sound work with notable errors
D	Satisfactory	60 – 69	Fair but with major shortcomings
E	Sufficient	50 – 59	Work meets minimum criteria
FX	Fail	(45-49)	More work required but credit awarded
F	Fail	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

Second stage

Course Description Form

Course Name:	
2− Agricultural machinery and equipment	
Course Code:	
Semester / Year: 2023-2024	
Description Preparation Date:1-9-2023	
Available Attendance Forms: Attended	
Number of Credit Hours (60) / Number of Units (3)	
Course administrator's name (mention all, if more than one name)	
Name: JAWAD KADHIM AL ARIDHEE Email: jawadaridhee@mu.edu.iq	
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
Teaching and Learning Strategies	
Strategy	

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 lecture	Test
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

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	
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 Description Form

Course Name:
3− **Lands leveling and grading**
Course Code:
Semester / Year: 2023-2024
Description Preparation Date:1-9-2023
Available Attendance Forms: Attended
Number of Credit Hours (60) / Number of Units (3)
Course administrator's name (mention all, if more than one name)
Name: JAWAD KADHIM AL ARIDHEE Email: jawadaridhee@mu.edu.iq

Course Objectives	
Course Objectives	Increasing the production of agricultural crops in quanti and quality due to the distribution of water in the field a approximately one depth Ease of irrigation, as the water is distributed evenly throughout the field. This means reducing the amount c water required by the irrigation process and reducing th effort and time required for this process, unlike uneven lands that require a large amount of irrigation water in addition to the greater time and effort to do

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

Course Structure

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

				practical lecture	
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

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	
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

Course Name:
4- pasture management
Course Code:
Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: sadeq Hadi Hussein

Email: Sadeq.hadi@mu.edu.iq

Course Objectives

Course Objectives	- Taking care of weekly duties - Active participation of students after asking questions - Repeat the lecture from last week by one or two students

Teaching and Learning Strategies

Strategy	- Introducing students to farm management - The role of management in managing the resources involved in the production process

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			1- Introduction to farm management 2-The nature of the costs 3- The principle of equal marginal returns 4- The principle of		

			determining and determining the best level of production 5- The principle of opportunity costs 6-Comparative costs theory 7- Farm budget 8- Farm accounts and records 9- Agricultural planning 10- Measures of economic efficiency on the farm		

Course Evaluation

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Farm Business Management - Hashem Alwan Al-Samarrai
Main references (sources)	Economics of agricultural production - Salem Tawfiq Al-Najafi

Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
5- Basis of microbiology
Course Code:
Semester / Year:
Semester
Description Preparation Date:
27/2/2024
Available Attendance Forms:
attend
Number of Credit Hours (Total) / Number of Units (Total)
6 3
Course administrator's name (mention all, if more than one name)
Name: Assistant Professor Dr. Dhifaf jabbar shamran Email: dhifaf15@mu.edu.iq

Course Objectives

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

Teaching and Learning Strategies

Strateg	- Cognitive objectives * Enables the student to understand the nature of microorganisms * Enabling the student to distinguish between different types of microorganisms * Enabling the student to focus on the vital activities of all speci * 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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first			A historical overview of microbiology, definition of microbiology, its types, and its relationship to other sciences	Direct lecture	

second			Bacteria, their shapes and composition		
Third			Different metabolic activities o bacteria		
forth			Fungi, their general characteris and types		
Fifth			Different metabolic activities o fungi and their classification		
Sixth			Monthly exam		
Seventh			Viruses, their definition, structu and types		
Eighth			Types of virus replication		
Ninth			Algae definition, structure and type		
tenth			Biofertilizers, their types and importance		
11			Second part of biofertilizers		
12			Second monthly exam		
13			Protozoa , its definition, structu and sections		
14			General Review		
15			Comprehensive exam		

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

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	

Course Description Form

Course Name:
6- agriculture extension principle
Course Code:
Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)

Name: sadeq Hadi Hussein

Email: Sadeq.hadi@mu.edu.iq

Course Objectives

Course Objectives	- Participation in the classroom - Requesting weekly assignments to be submitted -Quick and surprise exam in the previous lecture - Monthly tests - Choose a title from the lectures and make a report that the student delivers in class

Teaching and Learning Strategies

Strategy	- Teaching and introducing students to the most important link in the agricultural extension system, which is the agricultural guide and his role in transferring scientific material from scientific research departments and delivering it to farms with some ease and guidance. - Teaching students the art of adopting positive ideas in the field of agriculture

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			1- A historical overview of agricultural extension 2- Types of extension		

			training 3- Communication process 4- The process of adoption and spread of modern innovations 5- Rural leadership 6- Planning extension programs 7- Agricultural extension methods and extension methods 8- The philosophy of agricultural extension 9- Learning and teaching 10- The importance of using modern irrigation methods and their economic effects 11- The role of agricultural extension in preserving archaeological areas		

			12- Water crisis		

Course Evaluation

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Principles of agricultural extension - Abdullah Al-Samarrai
Main references (sources)	Planning extension programs - Abdullah Al-Samarrai 1992 Agricultural Extension Science - Adnan Hussein Al-Gharji 1990
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
7– computers
Course Code:
Semester / Year:
Semester
Description Preparation Date:
27/2/2024
Available Attendance Forms:
Attend
Number of Credit Hours (Total) / Number of Units (Total)
6 3

Course administrator's name (mention all, if more than one name)					
Name: Assistant Professor samer saud Email: @mu.edu.iq					
Course Objectives					
Course Objectives	*** This course description provides a necessary summary of the most important characteristics the course and the learning outcomes that the student is expected to achieve, demonstrating whether he has made the most of the available learning opportunities, and this must be linked the program description.** **1- Getting to know office programs, including (Excel).** **2- Managing databases using Excel** **1-The ability to work in all areas of computer use.** **2- Increasing the spirit of competition among students for the sake of academic excellence a obtaining good job opportunities.** **3- Increasing competition among students in order to obtain the opportunity to apply for postgraduate studies** **4- Providing assistance to other institutions.**				
Teaching and Learning Strategies					
Strateg	-				
Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

first			A historical overview of microbiology, definition of microbiology, its types, and its relationship to other sciences	Direct lecture	
second			Familiarity with office programs		
Third			The main interface of Excel		
forth			Save Excel workbooks, autosave, and save edits		
Fifth			Create and manipulate tables in Excel		
Sixth			Identify the types of data that can be entered into Excel cells		
Seventh			First month exam		
Eighth			Writing equations in Excel		
Ninth			Ready-made formulas		
tenth			Types of functions in Excel		
11			How to write a function and get result		
12			Second monthly exam		
13			Table and text formats		
14			Search, replace and alphabet		
15			Practical applications		
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					
Learning and Teaching Resources					

Required textbooks (curricular books, any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
8- English course
Course Code:
Semester / Year: Semester
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)

2hours weekly

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

Name: Lafta Awad Atshan
Email: lafta.awad@mu.edu.iq

Course Objectives

Course Objectives	English language skills

Teaching and Learning Strategies

Strategy	

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Sentences strictures		
2	2		Past tense		
3	2		Past simple		
4	2		Past continuous		
5	2		Present tenses		
6	2		Present Simple		
7	2		Present continuous		
8	2		Future tense		
9	2		Future simple		
10	2		Paragraphs writing		
11	2		Paragraphs writing		
12	2		Paragraphs writing		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Cambridge English: Preliminary
Recommended books and references (scientific journals, reports…)	Cambridge English: Preliminary

Electronic References, Websites	An English videos

Course Description Form

Course Name:
9- Principles of animal production
Course Code:
001110
Semester / Year:
The first stage/ autumn semester
Description Preparation Date:
26/2/2024

Available Attendance Forms:					
Presence					
Number of Credit Hours (Total) / Number of Units (Total)					
2 theoretical hours and 3 practical hours. Number of units: 3					
Course administrator's name (mention all, if more than one name)					
Name: Ass. Prof. Saad Atallah Abd sada Email: asadata@mu.edu.iq					
Course Objectives					
Course Objectives	**• It aims for the student to recognize the economic importance of animal production, as well as the sciences associated with it and the relationship of animal production to plant production.**				
Teaching and Learning Strategies					
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories				
Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2	Theoretical lecture	Introduction to animal production and its economic importance	A lecture	Quiz
2	2	Theoretical lecture	Factors affecting the production efficiency of farm animals	A lecture	Quiz
3	2	Theoretical lecture	Obstacles facing	A lecture	Quiz

			animal production in Iraq and ways to improve them		
4	2	Theoretical lecture	Dairy cows, beef cows and dual-purpose cows	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Establishing and managing a flock of sheep and goats	A lecture	Quiz
7	2	Theoretical lecture	Buffalo, general characteristics of buffalo	A lecture	Quiz
8	2	Theoretical lecture	Poultry birds, the economic importance of poultry projects	A lecture	Quiz
9	2	Theoretical lecture	Nutrition and fodder	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Health care for poultry birds	A lecture	Quiz
12	2	Theoretical lecture	Genetic improvement in poultry	A lecture	Quiz
13	2	Theoretical lecture	Sheep and goats economic importance	A lecture	Quiz
14	2	Theoretical lecture	Classification and methods used for classification	A lecture	Quiz
15	2	Theoretical lecture	Sheep breeding	A lecture	Quiz

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Production Zuhair Al-Jalili
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	Animal Science Journal

Course Description Form

Course Name:
10- Principles of soil science
Course Code:
0C1301
Semester / Year:
The first stage/ autumn semester
Description Preparation Date:
26/2/2024

Available Attendance Forms:	
Presence	
Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical hours and 3 practical hours. Number of units: 3	
Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Raheem Alwan Halool Email: raheemhalol@mu.edu.iq	
Course Objectives	
Course Objectives	**• Introducing the student to the properties of soil** **• Knowing the types of soil clays** **• Classification of soils and lands in Iraq**
Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method 3Student groups 4Practical lessons in laboratories

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	General definitions and concepts of soil	A lecture	Quiz
2	2	Theoretical lecture	Origin and development of soil	A lecture	Quiz
3	2	Theoretical lecture	Physical properties of soil	A lecture	Quiz
4	2	Theoretical lecture	Physical properties of soil	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	Soil water	A lecture	Quiz

7	2	Theoretical lecture	Colloids and soil chemical properties	A lecture	Quiz
8	2	Theoretical lecture	Types of soil clays and their respective	A lecture	Quiz
9	2	Theoretical lecture	characteristics Organic colloids	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Soil salinity	A lecture	Quiz
12	2	Theoretical lecture	Classification of soils affected by salinity	A lecture	Quiz
13	2	Theoretical lecture	Biological properties of soil	A lecture	Quiz
14	2	Theoretical lecture	Important nutrients in the soil	A lecture	Quiz
15	2	Theoretical lecture	Classification of soils and lands in Iraq	A lecture	Quiz

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

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Soil Science Abdullah Najim Al-Ani
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://mail.almerja.com/reading.php?idm=195342

Course Description Form

Course Name:
11- Principles of protection

Course Code:
0C1210
Semester / Year:
The first stage/ autumn semester
Description Preparation Date:
26/2/2024
Available Attendance Forms:
Presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical hours and 3 practical hours. Number of units: 3
Course administrator's name (mention all, if more than one name)
Name: Ass. Prof. Dr. Malik Hassan Kareem Email: malikhassan@mu.edu.iq
Course Objectives

Course Objectives	**• It aims to familiarize the student with entomology and its related sciences, insects, their benefits and harms.**

Teaching and Learning Strategies

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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Theoretical lecture	Introduction to	A lecture	Quiz

			entomology		
2	2	Theoretical lecture	Insect feeding methods and auxiliary factors	A lecture	Quiz
3	2	Theoretical lecture	Methods of insect reproduction	A lecture	Quiz
4	2	Theoretical lecture	Methods of insect resistance	A lecture	Quiz
5	2	Exam	Exam	Exam	Exam
6	2	Theoretical lecture	The economic mastitis and important factors	A lecture	Quiz
7	2	Theoretical lecture	The nature of life and damage of rodents	A lecture	Quiz
8	2	Theoretical lecture	Economic importance of pests	A lecture	Quiz
9	2	Theoretical lecture	Definitions of disease terms	A lecture	Quiz
10	2	Exam	Exam	Exam	Exam
11	2	Theoretical lecture	Plant pathogens	A lecture	Quiz
12	2	Theoretical lecture	Non-parasitic pathogens	A lecture	Quiz
13	2	Theoretical lecture	Stages of disease development	A lecture	Quiz
14	2	Theoretical lecture	Methods of controlling plant diseases	A lecture	Quiz
15	2	Theoretical lecture	Rodent control	A lecture	Quiz

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	**General entomology** **Ibrahim Qaddouri Al-Qaddo**
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.uoanbar.edu.iq/eStoreImages/Bank/926.pdf

Course Description Form

Course Name:	
12- Arabic Language	
Course Code:	
Semester / Year:	
The first stage/spring semester	
Description Preparation Date:	
26/2/2024	
Available Attendance Forms:	
Presence	
Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical hours Number of units: 2	
Course administrator's name (mention all, if more than one name)	
Name: Ass. Lecturer Amer Mousa Kadhum Email: amermousak@mu.edu.iq	
Course Objectives	
Course Objectives	**Teaching the student grammar and parsing, as well as rhetoric in the Holy Quran.**
Teaching and Learning Strategies	
Strategy	1 Explanation and clarification 2 Lecture method

	3Student groups 4Practical lessons in laboratories

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

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

Learning and Teaching Resources

Required textbooks (curricular books if 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

Course Name:	
13- Cultivation of desert lands	
Course Code:	
Semester / Year:	
the first	
Description Preparation Date:	
1/9/2023	
Available Attendance Forms:	
Number of Credit Hours (Total) / Number of Units (Total)	
Course administrator's name (mention all, if more than one name)	
Name: Dhafer Abdulrheem Shaker Email: dhaferabdshaker@mu.edu.iq	
Course Objectives	
Course Objectives	**• Learn how to maintain desert soil.** **• Identify methods for multiplying vegetable crops.** **• Identifying vegetable crops that can be grown in**

	desert areas. **• Reaching maximum production by using the optimal farming method and the best modern irrigation methods.** **• Using protected agriculture in vegetable production.**

Teaching and Learning Strategies

Strategy	

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	2	Identify the environmental requirements of vegetable crops grown in desert areas	the environmental requirements of vegetable crops grown in desert areas	Attend	a daily test
the second	2	Identifying the agricultural patterns adopted for farming desert areas	the agricultural patterns adopted for farming desert are	Attend	a daily test
the third	2	Identifying vegetable crops that can be grown in desert areas: the Solanaceae family.	vegetable crops that can be grown in desert areas : the Solanaceae family.	Attend	a daily test
the fourth	2	Getting to know the cucurbit family.	know the cucurbit family.	Attend	a daily test
Fifth	2	Identifying the Allium family and the Tuber family.	the Allium family and the Tuber family.	Attend	a daily test
VI	2	Identify the original homeland of the olive tree	the original homeland of the olive tree	Attend	a daily test
Seventh	2	Identify pollination in olives	pollination in olives	Attend	a daily test
VIII	2	Identify the environmental needs of olives	the environmental needs of olives	Attend	a daily test
Ninth	2	Learn about the botanical description of the palm tree	the botanical description of palm tree	Attend	a daily test
The tenth	2	Identifying palm propagation	palm propagation		

		(with pits, shoots, and shoots)	(with pits, shoots, and shoots)	Attend	a daily test
eleventh	2	Identify woody plants, their advantages and characteristics	woody plants, their advantages and characteristics	Attend	a daily test
twelveth	2	Learn about the benefits and uses of trees	the benefits and uses of trees	Attend	a daily test
Thirteent	2	Identify the divisions of trees based on their tolerance to environmental conditions	the divisions of trees based on their tolerance to environmental conditions	Attend	a daily test
fourteent	2	Learn about the methods of reproduction of trees and shrubs	the methods of reproduction of trees and shrubs	Attend	a daily test
Fifteenth	2	Identify the most important trees and shrubs	the most important trees and shrubs	Attend	a daily test

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	**Cultivation of desert lands. Written by Abdullah Qasim Abdullah and Yahya Hussein. Basics of growing and producing vegetables in protected and open lands Desert. Written by Sayed Fathi**
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Third stage

Course Description Form

Course Name:
14- Water harvesting
Course Code:
Semester / Year: Third

Description Preparation Date: 2023-2024

Available Attendance Forms: In person + electronic

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

Number of Credit Hours (Total) 30 hours

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

Name: Prof. Dr. Muhammad Radwan Mahmoud
Email: modrn@mu.edu.iq

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.**	**he student will be familiar with the mechanism of er harvesting** **roducing the student to Water harvesting**

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.**

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	**2Theoretical**		Introduction (definition of		**Exams ,**

week			water harvesting, main components of water harvesting system, determining factors of water harvesting system, benefits of water harvesting)		**reports, discussions**
second week	**2Theoretical**		Rainwater harvesting techniques		**Exams , reports, discussions**
the third week	**2Theoretical**		Techniques for harvesting valley water (floods)		**Exams , reports, discussions**
fourth week	**2Theoretical**		Reliability of water provision,		**Exams , reports, discussions**
The fifth week	**2Theoretical**		, storage capacity estimate		**Exams , reports, discussions**
the sixth week	**2Theoretical**		total rainfall amount, catchment area estimate		**Exams , reports, discussions**
Seventh week	**2Theoretical**		**First monthly exam**		**Exams , reports, discussions**
The eighth week	**2Theoretical**		Factors of circulating rainwater harvesting system		
Week nine	**2Theoretical**		Principles of planning for water harvesting projects		**Exams , reports, discussions**
The tenth week	**2Theoretical**		Water tanks		**Exams , reports, discussions**
Week eleven	**2Theoretical**		Sediments in tanks and their shelf life		**Exams , reports, discussions**
The twelfth week	**2Theoretical**		Dams, types of dams, their components, and dam collapse		**Exams , reports, discussions**
The thirteenth week	**2Theoretical**		Dams, types of dams, their components, and dam collapse		**Exams , reports, discussions**
The fourteenth week	**2Theoretical**		Dams, types of dams, their components, and dam collapse		**Exams , reports, discussions**
The fifteenth week			**The second monthly exam**		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Justine Anschütz, Antoinette Kome, Marc Nederlof,Rob de Neef, Ton van de Ven 2012,Water harvesting and soil moisture retention	
Main references (sources)	Water harvesting and soil moisture retention Translated into Arabic Muhammad Radwan	)2صادر
Recommended books and references (scientific journals, reports...)	Iraqi -reviewed journals **/https://www.elsevier.com**	
Electronic References, Websites	**https://icwrae-psipw.org/papers/2006/Arabic/Water/A9.pdf**	

Course Description Form

Course Name:
15- Soil Chemistry
Course Code:
Semester / Year:
Semester
Description Preparation Date:

27/2/2024

Available Attendance Forms:

Attend

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

4	3

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

Name: Assistant Professor Dr. bashar mezher jader
Email: bashar_mezher@mu.edu.iq

Course Objectives

Course Objectives	**The soil chemistry course aims to explain principles used in studying the chemical composit of soil. During this course, the student is introdu to all the chemical properties of soil and how estimate and calculate them practically and in field. During this course, all chemical properties soil are linked to other branches of soil science.**

Teaching and Learning Strategies

Strategy	• Make the learner active and effective in educatio situations. • Teach students to respect different opinions and val others • Benefit from other people's ideas and information.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	The importar of studying sc chemistry,	Soil chemist	**Explanation, presentation the model and lecture**	Exam
the secon	5	Ion exchar equations, physicochemic	Soil chemist	**Explanation, presentation the model and lecture**	Exam

		equations			
the third	5	chemical equations, s anion exchar capacity	Soil chemist	**Explanation, presentation the model and lecture**	Exam
the fourth		Solubility balance in soil	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Fifth		Carbonate equilibrium, CO2-H2O system, CaC H2O-CO2 system in soil	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Sixth	5	Phosphorus balance, ionization phosphorus soil, phospho reactions	soil chemist	**Explanation, presentation the model and lecture**	Exam
Seventh	5	Chemical potential of io in the soil syst - soil solution	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Eighth	5	phosphorus dissolution Soil acidity a alkalinit	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Ninth	5	curves in Al2O3-Fe2O3- CaO-P2O5-H2 system	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Tenth	5	the importance studying degree of s reaction	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Eleventh	5	sources of acid in the so methods	Soil chemist	**Explanation, presentation the model and lecture**	Exam

		measuring acidity a alkalinity			
Twelfth	5	effect of degree reaction on cation exchar capacity.	Soil chemist	**Explanation, presentation the model and lecture**	Exam
Thirteent		Equilibrium curves, s buffering, acid	Soil chemist	**Explanation,presentation the model and lecture**	Exam
Fourteen		alkalinity ofsc in dry and ser arid are calcareoussoils and gyps soils.	Soil chemist	**Explanation, presentation the model and lecture**	Exam

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

Learning and Teaching Resources

Required textbooks (curricular books, any)	Soil chemistry
Main references (sources)	Books related to the subject a scientific research
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://onlinelibrary.wiley.com/doi/full/10.1002/9781119 0762.wsts0025

Course Description Form

Course Name:	
16- **Soil fertility**	
Course Code:	
Semester / Year:	
Second	
Description Preparation Date:	
26\2\2024	
Available Attendance Forms:	
Actual presence	
Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 3 practical units 3.5	
Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Jaber Jassim Abu Talisha Email: **Jaberalardy@mu.edu.iq**	
Course Objectives	
Course Objectives	**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 the importance to plants**
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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	The student gets to know growth and the factors affecting it	**Fertilize technolo**	**Explanation, presentation of t model and lecture**	**the exam**
the secon	2	The student gets to know the types nutrients	Fertilizer technolog	**Explanation, presentation of t model and lecture**	**the exam**
the third	2	The student recognizes the movem and absorption of elements in the soi	Fertilizer technolog	**Explanation, presentation of t model and lecture**	**the exam**
the fourth	2	The student gets to know the types elements in the soil	Fertilizer technolog	**Explanation, presentation of t model and lecture**	**the exam**
Fifth	2	The student gets to know the necessa elements	Fertilize technolo y	**Explanation, presentation of t model and lecture**	**the exam**
Sixth	2	The student gets to know the ma elements	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
Seventh	2	The student gets to know the small elements	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
Eighth	2	The student gets to know the use and encouraging elements for growth	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
Ninth	2	For the student to recognize distinction between elements	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
The tenth	2	**For the student to get to know Factors affecting the readiness elements**	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**

Eleventh	2	The student gets to know nitrogen a its factors	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
Twelfth	2	The student gets to know phospho and potassium and their factors	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
Thirteenth	2	The student gets to know sulf calcium, magnesium, and tra elements	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
fourteenth	2	**The student will be familiar with t evaluation of soil fertility**	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**
Fifteenth	2	**The student will be familiar with t organic matter**	**Fertiliz technol y**	**Explanation, presentation of t model and lecture**	**the exam**

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

Learning and Teaching Resources	
Required textboo (curricular books, if any	Soil fertility 2014/a. Dr. Nour El-Din Shawky Ali
Main references (source	Fertilizer technologies and uses, 2012, Prof. Dr. Nour El-I Shawqi Ali
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

Course Name:
17- a desert environment
Course Code:
Semester / Year:
the second
Description Preparation Date:
28/1/2024
Available Attendance Forms:
Presence
Number of Credit Hours (Total) / Number of Units (Total)
30 hours/(2) units
Course administrator's name (mention all, if more than one name)
Name: Emad A.M.Aldahab Email:emad.aldahab@mu.edu.iq

Course Objectives

Course Objectives	**Learn about the des environment** **Factors leading to desertificatio** **Desert patterns**

Teaching and Learning Strategies

Strategy	Strategy for the skill of thinking and making t appropriate decision, meaning that the student makes good decision when thinking about the desert environme and ways to overcome its negative effects

Course Structure

Week	Hours	Required	Unit or subject	Learning	Evaluation

		Learning Outcomes	name	method	method
the first	2	Learn about the classification of deserts	classification of deserts	Attend	a daily test
the second	2	Learn about t geography deserts	geography deserts	Attend	a daily test
the third	2	Identify t climatic characteristics hot deserts	climatic characteristics hot deserts	Attend	a daily test
the fourth	2	Identify t relationship between rain a soil water conter	relationship between rain a soil water conter	Attend	a daily test
Fifth	2	First month exar	First month exar		
VI	2	Solve exercis related to t relationship between rain a soil water conte in the desert	relationship between rain a soil water conte in the desert	Attend	a daily test
Seventh	2	Recognizing dehydration	dehydration	Attend	a daily test
VIII	2	Identify dry regions and desertification	dry regions and desertification	Attend	a daily test
Ninth	2	Identify the patterns of dry regions and deserts	the patterns of d regions and deserts	Attend	a daily test
The tenth	2	Identify desert plants and their types	desert plants and their types	Attend	a daily test
eleventh	2	Second month	Second month		

		exam	exam		
twelveth	2	Learn about t ways desert pla adapt to the des climate	ways desert pla adapt to the des climate	Attend	a daily test
Thirteenth	2	Identify the changes in the desert and clima of Iraq	the changes in th desert and clima of Iraq	Attend	a daily test
fourteenth	2	Learn how develop the des environment	develop the des environment	Attend	a daily test
Fifteenth	2	Identifying t living patterns residents in t desert environment	living patterns o residents in the desert environment	Attend	a daily test

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

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
18- the economics of nature
Course Code:

Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: sadeq Hadi Hussein Email: Sadeq.hadi@mu.edu.iq
Course Objectives

Course Objectives	-Active participation in the classroom -Rapid exams -Monthly tests are proof of understanding the lecture
Teaching and Learning Strategies	
Strategy	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 4- Developing the student's ability to make people aware that natural resources belong to future generations as well as their current use

Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
			1- Natural resource economics 2- Land economics 3- Oil 4- Water resources 5- Human resources 6- Environment 7- Public goods and external factors 8- General expenses 9- Public revenues 10- Preserving natural resources 11- Sources of environmental pollution 12- Means of preserving natural resources		
Course Evaluation					
Natural Resource Economics - Hassoun Muhammad Ali					
Learning and Teaching Resources					

Required textbooks (curricular books, if any)	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

Course Name:
19– Soil-Plant-Water
Course Code:
Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: Qassim A. Talib Alshujairy Email: qassimtalib@mu.edu.iq
Course Objectives

Course Objectives	study Soil-Plant-Water course are to provide students with a derstanding of the relationships between soil, water, and plants

Teaching and Learning Strategies	
Strategy	e strategies for a course on soil-plant-water interactions often involve a combination of oretical knowledge, practical applications, and field experiences

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			Understanding Soil Properties: Soil-Water Movement: Plant-Water Relations: Soil-Water-Plant Interactions: Irrigation and Water Management: Soil and Water Conservation: Soil-Water Quality: Sustainable Agriculture: Climate Change Impacts: Applied Research and Technology: Fieldwork and Practical Skills:		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
20- Desertification
Course Code:
Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: Dhafer Abdulrheem Shaker Email: :dhaferabdshaker@mu.edu.iq
Course Objectives

Course Objectives	

Teaching and Learning Strategies

Strategy	

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			Introduction to the concept of desertification The problem of desertification, describing the forms of desertification and its causes The harms of desertification, its risks,		

			and the losses resulting from it, desertification globally, Arably, and locally Origin of desertification. Vegetation, salinity, drought First month exam Combat Desertification. Agriculture and permaculture Water resources and combating desertification Sand dunes as a manifestation of desertification Area distribution of sand dunes locally and their spread globally. The origin of the sand dune problem. Sand dunes and sand dunes. Means and methods for measuring desertification and sand dunes Second month exam Erosion measurement. Measuring the ability of soil to be removed. Measuring loss and addition Drought and aridity Global Warming Water harvesting		

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

Learning and Teaching Resources

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

(scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:	
21- **Soil physics**	
Course Code:	
Semester / Year:	
THIRD	
Description Preparation Date:	
26\2\2024	
Available Attendance Forms:	
Actual presence	
Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical 3 practical units 3.5	
Course administrator's name (mention all, if more than one name)	
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq	
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.**
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

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 s	Soil physics	Explanation,	the exam

		and water flow in unsatura soils		**presentation of model and lecture**	
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**

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

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 journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil physics**

Course Description Form

Course Name:
22- **remote sensing**
Course Code:
Semester / Year:
THIRD
Description Preparation Date:
26\2\2024
Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
Course administrator's name (mention all, if more than one name)
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq
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**
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

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 electromagne 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 model and lecture	the exam
fourteent	4	Geographic information syste	remote sensing	Explanation,	the exam

				presentation of model and lecture	
Fifteenth	4		**remote sensing**	**Explanation, presentation of model and lecture**	**the exam**

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

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

Course Name:
23- **Design and analysis experiments**
Course Code:
Semester / Year:
THIRD
Description Preparation Date:
26\2\2024

Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
Course administrator's name (mention all, if more than one name)
Name: Dr. Hadi Awad hasony Email: hadi_habeb2000@mu.edu.iq
Course Objectives

Course Objecti	**1* Informing the student that there are areas that depend on conducting experiments, an these experiments must be designed on scientific foundations** *** When analyzing experiments, it is done according to scientific methods and logical ste** *** Upon obtaining accurate results of the experiment, it leads us to make the appropriate decision** *** Introducing the student to many types of designs, as each experiment has a specific design** *** Introducing the student to how to test the significance of each mathematical model** *** Informing the student that there are tests conducted before the experiment and tests proposed after the experiment** *** Informing the student that there are values that can be lost during the experiment a that they can be estimated**

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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	A historical overview of statistics, definition of statistics,		**Explanation, presentation of model and lecture**	**the exam**

the secon	4	division of statistics Measures of central tendency, measures of centralization		**Explanation, presentation of model and lecture**	**the exam**
the third	4	Measures of dispersion		**Explanation, presentation of model and lecture**	**the exam**
the fourth	4	Hypothesis testing, statistical errors, hypothesis t-test		**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	Chi-square test		**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	General concepts and definitions in designing and analyzing experiments,		**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	Types of agricultural experiments, complete randomized design		**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	lsd test		**Explanation, presentation of model and lecture**	**the exam**
Ninth	4	Randomized complete block design		**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	Duncan's test		**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	Latin square design		**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	Global experiments		**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	Factorial experiments with two factors		**Explanation, presentation of model and lecture**	**the exam**
fourteent	4	Factorial experiments with three factors		**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4	Correlation and simple lin regression		**Explanation, presentation of model and lecture**	**the exam**

Course Evaluation	
1-Theoretical tests 25 2- Practical tests 15 3- Reports and studies 10 4- Final exam 50	
Learning and Teaching Resources	
Required textbooks (curricu books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	

Course Description Form

Course Name:
24- English course
Course Code:
Semester / Year: Semester
Description Preparation Date:

Available Attendance Forms:

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

2hours weekly

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

Name: Lafta Awad Atshan
Email: lafta.awad@mu.edu.iq

Course Objectives

Course Objectives	**English language skills**

Teaching and Learning Strategies

Strategy	

Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2		Sentences strictures		
2	2		Past tense		
3	2		Past simple		
4	2		Past continuous		
5	2		Present tenses		
6	2		Present Simple		
7	2		Present continuous		
8	2		Future tense		
9	2		Future simple		
10	2		Paragraphs writing		
11	2		Paragraphs writing		
12	2		Paragraphs writing		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Cambridge English: Preliminary
Recommended books and references (scientific journals, reports…)	Cambridge English: Preliminary
Electronic References, Websites	An English videos

Course Description Form

Course Name:
25- **Irrigation**
Course Code:
Semester / Year:
second
Description Preparation Date:
26\2\2024
Available Attendance Forms:

Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
Course administrator's name (mention all, if more than one name)
Name: Dr. AULA HUSSEIN ALI Email: Aula.alobeidi@mu.edu.iq
Course Objectives

Course Objecti	**1- Researches the science of irrigation, its sources, methods of controlling it, exploiting and delivering it to agricultural fields** **2- Study to evaluate the quality of irrigation water and its suitability for irrigation.** **3- Know how to plan, design and implement irrigation facilities** **4- It examines the relationship of water with soil, the movement of water in the soil, a the flow of water** **5- Calculating plant water consumption, water requirements, and irrigation scheduling addition to irrigation water measurements** **6- It examines drainage, sources of excess water, and the relationship of drainage to pla growth and productivity, soil salinity, salt balance, and washing requirements.**

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

Course Structure

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

first	4	The concept of irrigation, sources irrigation water, physical characteristics related to irrigation	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
the secon	4	Irrigation water quality	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
the third	4	The relationship of water with soil - moisture, movement of water in the s	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
the fourtl	4	Irrigation water measurements	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Fifth	4	Plant water consumption, water needs and irrigation scheduling	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Sixth	4	Transport and distribution of irriga water, movement of water in pipes open channels	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Seventh	4	Adequacy and efficiency of irriga and consistency of irrigation	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Eighth	4	Traditional irrigation methods	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Ninth	4	Modern irrigation methods	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
The tenth	4	Drainage concept, sources of ex water	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	4	The relationship of drainage to p growth and productivity	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	4	Drainage, soil salinity, leach requirements and salt balance	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	4	Types of drains: open, covered	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
fourteent	4	Distribution patterns of the d network, distance between drains maintenance of drains	Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Fifteenth	4		Irrigation and drainage	**Explanation, presentation of model and lecture**	**the exam**
Course Evaluation					
1-Theoretical tests		25			

2- Practical tests 15 3- Reports and studies 10 4- Final exam 50	
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- 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)	1-Irrigation, its basics and applications, written by Dr. Nabil Ibrahim Al-Taif and Dr. Issam Khudair Hamza Al-Hadithi 198 Ministry of Higher Education and Scientific Research - University of Baghdad 2- 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 Hamza Al-Hadithi, 2010, Ministry of Higher Education and Scientific Research - Anbar University 3- Irrigation and drainage, written by Dr. Laith Khalil Ism 2000 Ministry of Higher Education and Scientific Researcl University of Msul
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**

Course Description Form

Course Name:
26- **Plant Physiology**
Course Code:
Semester / Year:
Second
Description Preparation Date:
26\2\2024
Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3.5
Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. jabir jasim abwtlisha Email: Jaberalardy@mu.edu.iq
Course Objectives

Course Objectives	• **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**
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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2		**Plant Physiology**	Components a plant cell	**the exa**
the second	2		Plant Physiology	**Osmosis**	**the exa**
the thi	2		Plant Physiology	Past a active absorption	**the exa**
the fourth	2		Plant Physiology	Photosynthe	**the exa**
Fifth	2		Plant Physiology	**Respiration**	**the exa**
Sixth	2		Plant Physiology	**Growth p Hrmons**	**the exa**
Seven	2		Plant Physiology	Inhibitors p Hermon's	**the exa**
Eighth	2		Plant Physiology	Enzymes	**the exa**
Ninth	2		Plant Physiology	**Transpiration**	**the exa**
The tenth	2		Plant Physiology	Guttation a blooding	**the exa**
Eleven	2		Plant Physiology	**Colloidal solution**	**the exa**
Twelft	2		Plant Physiology	**Vernilazation**	**the exa**

Course Evaluation	
1-Theoretical tests 25 2- Practical tests 15 3- Reports and studies 10 4- Final exam 50	
Learning and Teaching Resources	
Required textbo (curricular books, if any)	Plant Physiology . 2000. Dr.Mouaid Alyonis
Main references (source	Plant Physiology
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic Referenc Websites	**Plant Physiology Journal** .

Course Description Form

Course Name:
27− Hydrology
Course Code:
Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)

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

Course Objectives

Course Objectives	s of a hydrology course are to provide students with sive understanding of the principles and processes distribution, movement, and properties of water on

Teaching and Learning Strategies

Strategy	**ctures:** Traditional classroom lectures are often used to present fundamental concepts, theories, d principles of hydrology. Lectures provide an opportunity for instructors to convey information, cuss theoretical frameworks, and highlight key concepts. **boratory Work:** Hands-on laboratory sessions allow students to apply theoretical knowledge practical situations. In hydrology courses, students may engage in activities such as water ality testing, flow measurements, and experiments related to hydrological processes. **ldwork:** Field trips or fieldwork exercises provide students with direct exposure to real-world drological environments. This could include visits to watersheds, rivers, lakes, or groundwater nitoring sites to observe and analyze hydrological features and processes.

Course Structure

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

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	
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

Course Name:
28- Soil water plant and analysis
Course Code:
Semester / Year: Chapter Two/Four

Description Preparation Date:
Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 0 practical units 2
Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. G. B. Noni Email: ghanem-bahlol@mu.edu.iq
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
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

Course Structure

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

The first The seco	5 5	The student gets to know introduction about water , soil plant analytical is for the student to know analytical of water	ter , soil and lant analytical	Explanation, presentation of the model and lecture	the exam
Third	5	The student learns about soil analytical	Water , soil plant analytical	Explanation, presentation of the model and lecture	the exam
Fourth	5	The student gets to know plant analytical	Water , soil plant analytical	Explanation, presentation of the model and lecture	the exam
Fifth	5	: The student learns about methods of soil samples	Water , soil plant analytical	Explanation, presentation of the model and	the exam

				lecture	
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 methods	Water , and pl analytica	Explanation, presentation of the model and lecture	the exam
Eighth		The student gets to know the quantitative and volumetric methods	Water , and pl analytica	Explanation, presentation of the model and lecture	the exam
Ninth		The student gets to know the quantitative and weighing methods	Water , and pl analytica	Explanation, presentation of the model and lecture	the exam
Tenth		: The student will learn about electrical of a Analytical methods	Water , and pl analytica	Explanation, presentation of the model and lecture	the exam

Eleventh Twelfth	5	The student gets to know About analytical of spectroscopy The student gets to know Atomic emission methods	Water , and pl analytica	Explanation, presentation of the model and lecture	the exam the exam
th e h		: The student knows how the Atomic absorption methods	Water , and pl analytica	Explanation, presentation of the model and lecture	the exam
Fourteen		: The student gets to know Metal analysis methods	Water , soil plant analytical	Explanation, presentation of the model and lecture	the exam
Fifteenth		The student gets to know the types of X-	Water , soil plant analytical	Explanation, presentation of	the exam

		ray analysis methods		the model and lecture	

Course Evaluation
Theoretical tests 40 2- Practical tests - 3- Reports and studies 10 4- Final exam 50

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**

Forth stage

Course Description Form

Course Name:

29− Soil salinity and its melioratio
Course Code:
Semester / Year:
Semester
Description Preparation Date:
27/2/2024
Available Attendance Forms:
Attend
Number of Credit Hours (Total) / Number of Units (Total)
4 3
Course administrator's name (mention all, if more than one name)
Name: Assistant Professor Dr. bashar mezher jader Email: bashar_mezher@mu.edu.iq
Course Objectives

Course Objectives	**It investigates the spread of saline soils in the world and Iraq a its impact on agricultural production. It includes studying sources of salts in nature and soils and means of transport them, studying the effect of salts on plant growth and metho for increasing plants' resistance to salinity.**

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.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	5	The problem of salinity and impact onagriculturalproduction, problem of salinity in Iraq in past and present	Salinity and l reclamation	Explanation presentation the model a lecture	exam

second	5	Sources of salt components	alinity and l reclamation	Explanation presentation the model a lecture	Exam
third	5	The effect of soil salinity on plant	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
the fourt	5	Classification and naming of s affected by salts	Salinity andl reclamation	Explanation presentation the model a lecture	Exam
Fifth	5	Irrigation water quality	alinity and l reclamation	xplanation, presentation the model a lecture	Exam
Sixth	5	Controlling salinity and ways to l with it	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
Seventh		Land reclamation (decisions a requirements).	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
E h		Lands that need reclamation	Salinity andl reclamation	Explanation presentation the model a lecture	Exam
Ninth	5	Reclamation of salty lands	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
Tenth	5	Reclamation of sandy lands	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
Eleventh	5	Gypsum lands and their reclamati	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
Twelfth		Limestone lands and th reclamation	Salinity and l reclamation	Explanation presentation the model a lecture	Exam
Thirteent	5	Waterlogged lands and th reclamation	Salinity and l reclamation	Explanation presentation	Exam

				the model a lecture	
fourteent		Desert lands and their reclamatior	Salinity and l reclamation	Explanation presentation the model a lecture	Exam

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Soil salinity Soil melioration
Main references (sources)	Books related to the subject a scientific research
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://www.sciencedirect.com/tops/earth-and-planetary-sciences/soil salinity

Course Description Form

Course Name:
30− **Soil microbiology**
Course Code:
Semester / Year:

four

Description Preparation Date:

26\2\2024

Available Attendance Forms:

Actual presence

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

2 theoretical 3 practical units 3.5

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

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

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**

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

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 proce 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 microorganisms its transformations**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**Biological transformations of phosphor its cycle and the role of microorganisms 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 microorganis the area surrounding the ro (rhizosphere) and the activity microorganisms in this area**	**Soil Microbiolog**	**Explanation, presentation of model and lecture**	**the exam**

		Factors affecting the growth of			
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**

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

Learning and Teaching Resources	
Required textbooks (curricu books, if any)	11- Soil microbiology. 2012. 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

Course Name:
31- Environmental stress
Course Code:

Semester / Year: Fourth

Description Preparation Date: 2023-2024

Available Attendance Forms: In person + electronic

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

Number of Credit Hours (Total) 75 hours

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

Name: Prof. Dr. Muhammad Radwan Mahmoud
Email: modrn@mu.edu.iq

Course Objectives

Course Objectives **Course objectives** **Objectives of the study subject This cou description provides a summary of the n important characteristics of the course and learning outcomes that the student is expected achieve, demonstrating whether he or she has m the most of the learning opportunities available must be linked to the program description**	**e student will be familiar with the mechanism of ct of environmental stress on plants, and the forms effect** **troducing the student to the environmental str lting from extreme conditions and its effects on plar plants resist that effect, and what the damag lting from that effect are**

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.**

Course Structure

Week	Hours	Required Learning	Unit or subject name	Learning	Evaluation

		Outcomes		method	method
The first week	**2Theoretic 3 Practica**		**An introduction to the type stress Stress measurement methods**		**Exams , reports, discussions**
second week	**2Theoretic 3 Practica**		**Mechanism of the effect of st on metabolism)construction and demolition Stress simulation methods**		**Exams , reports, discussions**
the third week	**2Theoretic 3 Practica**		**Water stress The movement of water in the plant at The occurrence of water tens**		**Exams , reports, discussions**
fourth week	**2Theoretic 3 Practica**		**The effect of water stress on Physiological processes Anatomical compari between plants Stress-prone plants Water balanced**		**Exams , reports, discussions**
The fifth week	**2Theoretic 3 Practica**		**The effect of water stress on: Metabolic components Morphological compari between Plants exposed to stress And balanced plants**		**Exams , reports, discussions**
the sixth week	**2Theoretic 3 Practica**		**Divide plants according to t needs waterproof, Plants adapt to water stress Anatomical features The morphology of plants Drought resistance**		**Exams , reports, discussions**
Sevent h week	**2Theoretic 3 Practical**		**Hardening, the effect of soil darkening the plants Practical experiments on hardening And the darkening of the soil**		**Exams , reports, discussions**
The eighth week			**First monthly exam**		
Week nine	**2Theoretic 3 Practical**		**Thermal stress Plant division and acclimatization for different temperatures Methods for measuring temperature in plants And soil, and the relationship between temperature**		**Exams , reports, discussions**

The tenth week	**2Theoretic 3 Practical**		**Low temperature stress Effect of low temperature str On physiological processes High temperature stress Scientific experiments on stre The heat**		**Exams , reports, discussions**
Week eleven	**2Theoretic 3 Practical**		**Salt stress (problem soil wavy, Causes of soil salinity, types Plants and their adaptation t stress Saline, effect of salt stress On plant anatomy, effect Salt stress during operations physiological(Scientific experiments on salinity- Anatomical and morphologic comparison Among plants exposed to salinity Plants growing in a different environment Salty**		**Exams , reports, discussions**
The twelfth week	**2Theoretic 3 Practical**		**External factors affecting On responding to stress Saline, stress number Hydroxychloroquine Salinity measurement method**		**Exams , reports, discussions**
The thirtee nth week	**2Theoretic 3 Practical**		**Photostress Scientific experiments on stres Photosynthesis- anatomical comparison and morphology among plants Exposed to light stress And non-stressed plants**		**Exams , reports, discussions**
The fourtee nth week	**2Theoretic 3 Practical**		**Pollutant stress Anatomical and morphologica comparison Among plants exposed to pollution And plants not exposed to pollution**		**Exams , reports, discussions**
			The second monthly exam		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)			
Main references (sources)	Matthew, A.J and P. M. Hasegawa (2003). Plant Abiotic Stress. 2nd Edition. Wily		)2 صادر(

	Pub. PP: 336. Shabala S. (2017). Plant Stress Physiology. 2nd Edition. CABI Pub. PP: 376	
Recommended books and references (scientific journals, reports...)	Iraqi -reviewed journals **/https://www.elsevier.com**	
Electronic References, Websites	**/https://www.elsevier.com** **/https://scholar.google.com**	

Course Description Form

Course Name:
32- Geographic information systems
Course Code:
Semester / Year: Fourth
Description Preparation Date: 2023-2024
Available Attendance Forms: In person + electronic
Number of Credit Hours (Total) / Number of Units (Total)
Number of Credit Hours (Total) 75 hours
Course administrator's name (mention all, if more than one name)
Name: assi. Prof. Dr. ali Fadhil Email: alifadhil@mu.edu.iq
Course Objectives
General objectives: Introducing students to the general concepts of geographical technologies, a number of programs used, and introducing them to a number of concepts of the educational process and applications relat to them. **Specific objectives: The student should be able to:** **1. Knowledge of the basic foundations and principles of geographical techniques and their methods, tools and techniques.** **2. Knowing the practical application process, its impact, and its relationship to the educational material.** **3. Know the importance of geographic techniques in preparing digital maps.** **4. Knowledge of the historical background for the development of geographical techniques and the scientific methods and methods associated with them.** **5. Know the importance of geographical techniques in preparing agricultural research.**

6. Applying the scientific concepts the student has learned in his practical life.
In addition to working on achieving the six levels (remembering - understanding - application - analysis - synthesis - evaluation).
In presenting the learning material by following multiple methods and methods.

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.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week	**2Theoretic 3 Practica**		Introduction to geograph technologies (the concep technologies, th importance, types. complementary relations between geograph technologies)		**Exams , reports, discussions**
second week	**2Theoretic 3 Practica**		Remote sensing (underst (definition), its histor development. Its importa and areas of its gen applied uses.		**Exams , reports, discussions**
the third week	**2Theoretic 3 Practica**		Types of remote sensing and its techniques		**Exams , reports, discussions**
fourth week	**2Theoretic 3 Practica**		Google Earth applicati (definition, contents)		**Exams , reports, discussions**
The fifth week	**2Theoretic 3 Practica**		How to improve space visualization (bands, various operations on space visualization		**Exams , reports, discussions**

the sixth week	**2Theoretic 3 Practica**		Geographic Informat Systems (GIS) (introduct to information syste understanding (nature of currency), definiti features)		**Exams , reports, discussions**
Sevent h week	**2Theoretic 3 Practical**		Components of geographi information systems		**Exams , reports, discussions**
The eighth week			Types of data and information in geographic information systems (spat data).		
Week nine	**2Theoretic 3 Practical**		Data Descriptive and temporal data		**Exams , reports, discussions**
The tenth week	**2Theoretic 3 Practical**		Databases in geographic information systems and their types		**Exams , reports, discussions**
Week eleven	**2Theoretic 3 Practical**		Structure and installation databases in geographic information systems		**Exams , reports, discussions**
The twelfth week	**2Theoretic 3 Practical**		A practical lesson on how create databases in geographic information systems		**Exams , reports, discussions**
The thirtee nth week	**2Theoretic 3 Practical**		Applications of Arc GIS 1 (definition, contents, (displ window, tables, layout, scripts))		**Exams , reports, discussions**
The fourtee nth week	**2Theoretic 3 Practical**		Working with the scene or display window (opening t project, zooming in and ou of features, moving them, showing, hiding, arranging activating topics)		**Exams , reports, discussions**
			Dealing with the charts window (creating it, editin it, displaying it)		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:	
33- Professional ethics	
Course Code:	
Semester / Year:	
2023 – 2024	
Description Preparation Date:	
28 -2-2024	
Available Attendance Forms:	
Number of Credit Hours (Total) / Number of Units (Total)	
One hour per week on Semester	
Course administrator's name (mention all, if more than one name)	
Name: Prof.Dr.Falah Hasan Issa Email: flah70-hasan@mu.edu.iq	
Course Objectives	
Course Objectives	Creating a community prepared to deal with the la market • Knowledge of general work ethics • Knowledge of rights and duties at work
Teaching and Learning Strategies	
Strategy	

Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
			1- The concept of wor ethics 2- The importance of ethics in general 3- The importance of ethics for the individu 4- The importance of ethics for society 5- Ethics required in t employer 6- The decline in worl ethics 7- Patterns of behavio and ethics at work 8- Types of corruptio according to the field which it arose 9- Corruption accordi to the affiliation of the individuals involved i corruption 10- Manifestations of administrative and financial corruption 11- The ethics of the teaching profession a its impact on the educator's personality and performance 12- Sources of ethics i the teaching professio 13- The i characteristics that be present in the educ		

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

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	google
Recommended books and references (scientific journals, reports…)	Reports
Electronic References, Websites	Ethics

Course Description Form

Course Name:
34- Water Quality
Course Code:

Semester / Year:
Semester
Description Preparation Date:
27/2/2024
Available Attendance Forms:
Attend
Number of Credit Hours (Total) / Number of Units (Total)
4 3
Course administrator's name (mention all, if more than one name)
Name: Assistant Professor Dr. bashar mezher jader Email: bashar_mezher@mu.edu.iq
Course Objectives

Course Objectives	**The course describes the concept of hydrol and the hydrological and hydrological cycle. scientific terms used in the field of water scie are also discussed. In this course, the stud learns about the partial structure of water and natural and chemical properties. The flow of flu in open pipes and channels in porous media also explained and interpreted.**
Teaching and Learning Strategies	
Strategy	• Make the learner active and effective in educatio situations. • Teach students to respect different opinions and val others • Benefit from other people's ideas and information.

Course Structure

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

first	5	Water properties	Water quality	**Explanation, presentation the model a lecture**	Exam
the second	5	Irrigation water qual in Iraq	Water quality	**Explanation, presentation the model a lecture**	Exam
the third	5	Irrigation water classificatic systems	Water quality	**Explanation, presentation the model a lecture**	Exam
the fourth	5	Approved indicators evaluating irrigation water quali	Water quality	**Explanation, presentation the model a lecture**	Exam
Fifth	5	Suitability irrigation water	Water quality	**Explanation, presentation the model a lecture**	Exam
Sixth	5	Irrigation water quali	Water quality	**Explanation, presentation the model a lecture**	Exam
Seventh	5	The role irrigation water a salt balar in the soil	Water quality	**Explanation, presentation the model a lecture**	Exam
Eighth	5	Water Pollution	Water quality	**Explanation, presentation the model a lecture**	Exam
Ninth	5	Water desalinatio	Water quality	**Explanation, presentation the model a lecture**	Exam
Tenth	5	Water harvesting	Water quality	**Explanation, presentation the model a lecture**	Exam
Eleventh	5	The relationshi	Water quality	**Explanation, presentation**	Exam

		between irrigation water quality, agricultura yield, soil a climate		**the model a lecture**	
Twelfth	5	The relationshi between irrigation water qual and irrigation technologie	Water quality	**Explanation, presentation the model a lecture**	Exam
Thirteenth	5	Technologi for using s water irrigation	Water quality	**Explanation, presentation the model a lecture**	Exam
Fourteenth	5	Wastewate and techniques for its s use irrigation	Water quality	**Explanation, presentation the model a lecture**	Exam

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

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Water quality
Main references (sources)	Books related to the subject a scientific research
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://wqa.org/

Course Description Form

Course Name:
35- sustainable development
Course Code:
Semester / Year: Chapter Two/Four
Description Preparation Date:
Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 0 practical units 2
Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Jaber Jassim Abu Talisha Email: Jaberalardy@mu.edu.iq
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

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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The	5 5	The student gets to	Sustainable	Explanation,	the exam

first		know the ecosystems of sustainable	developmen t	presentation of the model and lecture	
The secon	6	agricultur is for the student to become familiar with the use of renewable resources	Sustainable developmen t		
Third	5	The student learns about reducing toxic substances in the environment	Sustainable developmen t	Explanation, presentation of the model and lecture	the exam
Fourth	5	The student gets to know soil conservation	Sustainable developmen t	Explanation, presentation of the model and lecture	the exam
Fifth	5	: The student learns about water conservation	Sustainable developmen t	Explanation, presentation of the model and lecture	the exam
Sixth	5	: The student learns about energy conservation	Sustainable developmen t	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 5	The student gets to know Recycling and preserving items The student gets to know the economics of	Sustainable development	Explanation, presentation of the model and lecture	the exam

		natural resources			
thirteenth	5	: The student knows how to manage human capital	Sustainable development	Explanation, presentation of the model and lecture	the exam
Fourteen	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 energ	Sustainable development	Explanation, presentation of the model and lecture	the exam

Course Evaluation

Theoretical tests 40

2- Practical tests -

3- Reports and studies 10

4- Final exam 50

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

Course Name:	
36- Basics of livestock production	
Course Code:	
Semester / Year: the second 2024	
Description Preparation Date:2024/1/20	
Available Attendance Forms:	
Number of Credit Hours (Total) / Number of Units (Total) 30(3 unit)	
Course administrator's name (mention all, if more than one name)	
Name: Hassan Awied Fazaa Email: hassanawied@mu.edu.iq	
Course Objectives	
Course Objectives	**Identify the general economic aspects** **Identify the economic aspect of agricultural projects and calculating economic feasibility** **Analysis of cost and revenue items for the agricultural project** **Identify the role of the agricultural sector in the economic structure of the state**
Teaching and Learning Strategies	
Strategy	
Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first.	3		*Overview of livestock production	Theoretical lecture	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		*Camel breeding		
Eight.	3		*Some methods of raising camels		
Ninth.	3		*Farm animal nutrition		
tenth.	3		*Ruminant feeding		
eleventh	3		*Some types of buffalo in Iraq		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	*Principles of animal production *Basics of livestock production
Main references (sources)	-The basics of sheep and goat production, Dr. Jalal Elia Al-Qass 2- Milk cattle production, Dr. Naguib Tawfiq
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
37- Wind and water erosion
Course Code:
Semester / Year:
Description Preparation Date:
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: Dhafer Abdulrheem Shaker Email: :dhaferabdshaker@mu.edu.iq
Course Objectives

Course Objectives	

Teaching and Learning Strategies

Strategy	

Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
			Mechanics and processes of wind and water erosion Wind erosion Water erosion Erosion and its impact on human activities First month exam Runoff Soil erosion and its types Methods of controlling		

			soil erosion Environmental problems related to soil degradation The impact of soil maintenance on its sustainable productivity Second month exam The concept of non-erodible soil aggregates Sand dunes Windbreaks Small earth dams and water reservoirs		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
38- Groundwater management
Course Code:
Semester / Year:
the first
Description Preparation Date:
1/9/2023
Available Attendance Forms:
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: Dhafer Abdulrheem Shaker Email: dhaferabdshaker@mu.edu.iq

Course Objectives	
Course Objectives	**• Identify the foundations of wind and water erosion.** **• Identify the impact of erosion on human activities.** **• Identify the danger of erosion on agricultural lands.** **• Compare and differentiate between wind eros and water erosion.**

Teaching and Learning Strategies	
Strategy	

Course Structure

Week	Hours	Required Learning	Unit or subject name	Learning	Evaluation

		Outcomes		method	method
the first	2	Identify the impact of soil maintenance on its sustainable productivity	the impact of soil maintenance on its sustain productivity	Attend	a daily test
the second	2	Identify the concept of non-erodible soil aggregates	the concept of non-erodible aggregates	Attend	a daily test
the third	2	Identify sand dunes	sand dunes	Attend	a daily test
the fourth	2	Identify windbreaks	windbreaks	Attend	a daily test
Fifth	2	Identify small earth dams and water reservoirs	small earth dams and water reservoirs	Attend	a daily test
VI	2	Identify erosion and weathering of groundwater	erosion and weathering of groundwater	Attend	a daily test
Seventh	2	Learn about the conservation and maintenance of soil and water	the conservation and maintenance of soil and water	Attend	a daily test
VIII	2	Identify wind erosion	wind erosion	Attend	a daily test
Ninth	2	Identify water erosion	water erosion	Attend	a daily test
The tenth	2	Identify erosion and its impact on human activities	erosion and its impact on human activities	Attend	a daily test
eleventh	2	Identify surface runoff	surface runoff	Attend	a daily test
twelveth	2	Identify soil erosion and its types	soil erosion and its types	Attend	a daily test
Thirteent	2	Identify methods of controlling soil erosion	methods of controlling soil erosion	Attend	a daily test
fourteent	2	Identify environmental problems related to soil degradation	environmental problems related to soil degradation	Attend	a daily test
Fifteenth	2	Identify the mechanics and proces of wind and water erosion	the mechanics and process of wind and water erosion	Attend	a daily test
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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	**Water and wind erosion and its impact on lands.** **Written by: Dr. Dhafer Ibrahim Al-Azzawi, Dr. Ismail Fadel Al Bayati**
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:	
39– English course	
Course Code:	
Semester / Year: Semester	
Description Preparation Date:	
Available Attendance Forms:	
Number of Credit Hours (Total) / Number of Units (Total)	
2hours weekly	
Course administrator's name (mention all, if more than one name)	
Name: Lafta Awad Atshan Email: lafta.awad@mu.edu.iq	
Course Objectives	
Course Objectives	**English language skills**

Teaching and Learning Strategies	
Strategy	

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Sentences strictures		
2	2		Past tense		
3	2		Past simple		
4	2		Past continuous		
5	2		Present tenses		
6	2		Present Simple		
7	2		Present continuous		
8	2		Future tense		
9	2		Future simple		
10	2		Paragraphs writing		
11	2		Paragraphs writing		
12	2		Paragraphs writing		

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Cambridge English: Preliminary
Recommended books and references (scientific journals, reports…)	Cambridge English: Preliminary
Electronic References, Websites	An English videos

Course Description Form

Course Name:
40- Desert soil management
Course Code:
Semester / Year:
23-2024
Description Preparation Date:
3/3/2024
Available Attendance Forms:
Attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 theory/ 4 practical / 3 units
Course administrator's name (mention all, if more than one name)
Name: Dr. Saleh Shehab Sabah Email: saleh.sabah79@mu.edu.iq
Course Objectives

Course Objectives	• Identify the types of oil soils • How to deal with these soils • Achieving maximum focus on the relationship of effective oil soils to growing crops in them • Develop an agricultural plan that prevents accumulated climate damage and poor soil management • Determine the location of the soil and the direction of the winds to place windbreaks and influence winds and floods
Teaching and Learning Strategies	
Strategy	1- Explanation and clarification 2- Lecture method 3- Student groups 4- Practical lessons in agricultural fields 5- Scientific trips to relevant departments and research stations 6- Self-learning method

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	6	Learn about desert soil management, definitions and terms	Related to soil management	Presence	Daily test
second	6	Identify the components of the desert environment	Components of the desert environment	Presence	Daily test
third	6	Learn about soil surveying and management	Soil surveying and management	Presence	Daily test
fourth	6	Learn about the mechanism of land use evaluation	The mechanism of land use evaluation	Presence	Daily test
Fifth	6	Identify the soil classification mechanism	Soil classification mechanism	Presence	Daily test
Sixth	6	Identify the suitability of soil for growing crops and vice versa	Suitability of soil for growing crops and vice versa	Presence	Daily test
Seventh	6	Learn about the agricultural cycle application	Learn about the agricultural cycle application	Presence	Daily test
Eighth	6	Get to know the administrative map	The administrative map	Presence	Daily test
Ninth	6	Identify the legal description of the land's location	The legal description of the land's location	Presence	Daily test
Tenth	6	Identify the Reclamation procedures	Reclamation procedures	Presence	Daily test
Eleventh	6	Identify civilian units	Civilian units	Presence	Daily test
Twelves	6	Learn about climate problems	Climate problems	Presence	Daily test
Thirteen	6	Identify the risks of erosion	The risks of erosion	Presence	Daily test

fourteen	6	Identify the most important desert plants	Most important desert plants	Presence	Daily test
Fifteenth	6	Studying the effect of root systems on soil properties	Effect of root systems on soil properties	Presence	Daily test

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Desert soil management lectures / College of Agriculture, Al-Muthanna University
Recommended books and references (scientific journals, reports…)	Al-Muthanna University Electronic Library
Electronic References, Websites	https://agr.mu.edu.iq

Course Description Form

Course Name:
41- **Soil survey and classification**
Course Code:

Semester / Year:
Fourd
Description Preparation Date:
26\2\2024
Available Attendance Forms:
Actual presence
Number of Credit Hours (Total) / Number of Units (Total)
2 theoretical 3 practical units 3
Course administrator's name (mention all, if more than one name)
Name: aula saad rasool Email : aula.abokehella @mu.edu.iq
Course Objectives

Course Objecti	**Soil classification systems in the world** **● The old system of soil classification** **● The modern quantitative system for soil classification** **● Rules and organizational structure**

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

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 Classification**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
the secon	2	**For the student to know the metheds of Soil Classification**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
the third	2	**The student will be familiar with the means of Formation soil**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
the fourtl		**The student will be familiar with the I Soil survey**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Fifth	2	**The student will be familiar with the conditions of soil formation**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Sixth	2	**student gets to know the types Rocks**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Seventh	2	**For the student to recognize the aspects the earth systems**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Eighth	2	**The student will be familiar with the indicators for determining the effect of Geology**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Ninth	2	**The student will be familiar with the means of increasing the ability of Fiel survvey**	**Soil survey classification**	**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**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Eleventh	2	**The student will be familiar with irrigati water classification systems**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Twelfth	2	**The student will learn Fao classificatio**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**
Thirteent	2	**For the student to become familiar with problems of limestone soils**	**Soil survey classification**	**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**	**Soil survey classification**	**Explanation, presentation of model and lecture**	**the exam**

Course Evaluation					
1-Theoretical tests 25 2- Practical tests 15 3- Reports and studies 10 4- Final exam 50					
Learning and Teaching Resources					
Required textbooks (curricu books, if any)	11- siol classification dr. Ahmed ALmashedany				
Main references (sources)					
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals				
Electronic Referenc Websites	**Soil Science Society Of America** **Library Genesis**				