



**Ministry of Higher Education and Scientific
Research
Kirkuk University / College of Agriculture
Field Crops Department**



**guide of Academic program
description
Field Crops Department
Kirkuk University / College of
Agriculture**

2024

Academic Program Description Form

University Name: Kirkuk

Faculty/Institute: Agriculture

Scientific Department: Filed crops

Academic or Professional Program Name: Bachelors of field crops

Final Certificate Name: Bachelor's degree in field crop sciences

Academic System: semester

Description Preparation Date: 28/03/2024

File Completion Date: 28/03/2024

Signature:

Head of Department Name: Prof. Dr. Khattab Abdullah Mohammed

Date: 31/03/2024

Signature:

Scientific Associate Name: Ammar Qahtan Shanon

Date: 31/03/2024



The file is checked by *Dr. Ahmed Isam Dawood*

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department.

Date: 07/04/2024

Signature:

Dr. Ahmed Isam Dawood



Approval of the Dean

Dr. Osama I. Ahmed

04/04/2024

1. Program Vision

1. Providing a specialized staff to work in government institutions, private sector and related centers.
2. Linking theoretical with practical results by implementing research projects for under and postgraduate students and updating results by using the recent technologies to reach high production and quality improvement.
3. Exchange of experiences between academic staff and government institutions through conducting field visits for students of under and postgraduate studies and joint research between the department's employees, research and scientific centers, institutions and their implementation in farmer fields.
4. Expansion in production areas vertically and horizontally, by increasing in the production mechanisms of field crops like (crop breeding, crop production, crop technology, control and reduction of disease and insect infections).
5. Increasing practical models to enhance students' skills in a way that contributes to serving the labor market.

6. Program Mission

According to the department tasks and duties which requires to carry out through to deliver modern technologies to the province farmers, especially the cultivation of strategic crops such as wheat, yellow corn and other crops that are common in Kirkuk Governorate, in a way that ensures an increase cultivated areas for low and medium-fertile lands and encourages intercropping and successive joint agriculture in different parts of Kirkuk Governorate, preparing agricultural stuff that graduated from the department to be on their way to the same vision and tasks, and coordinating with seed companies and seeds certified institution and grain silos to improve students skills.

7. Program Objectives

1. Awarding a bachelor degree in field crop science to graduates who are trained and qualified to work in the public and private sectors to serve the community.
2. Providing scientific and technical consultations to state departments and private sector by specialized scientific stuff in the department in coordination with the advisory office in the college.
3. Establishing skills development courses for various stuff within this department in a way that contributes to the development of society through the improvement of field crop cultivation in general and industrial crops in particular.
4. Work on the introduction of modern technologies such as conservation agriculture techniques and follow sustainable methods in the cultivation of field crops to increase production.
5. Organizing seminars, workshops and scientific conferences to discuss developments in the cultivation of field crops and invite beneficiaries to participate in them.
6. Participation in scientific activities held by other universities such as local and international conferences, which contributes to expanding the horizons of knowledge and exchanging scientific experiences for the department's stuff.
7. Holding training courses for graduates of the department appointed in governmental and non-governmental institutions to suit their skills with the requirements of those institutions as well as.

8. Program Accreditation

The program is seeking programmatic accreditation

9. Other external influences

Coordination with relevant agricultural departments as well as the participation of private sectors

10. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	12	14	9.6%	fundamental
College Requirements	20	48	32.9%	fundamental
Department Requirements	28	84	57.5%	fundamental
Summer Training	1			fundamental

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

11. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First year/first semester	ORCH111	Organic Chemistry		
	GEPL112	General Plant	2	3
	PLSU113	Plane Surveying	2	3
	FICP114	Field Crops Principles	1	3
	ENDR115	Engineering Drawing	2	3
	HURD116	Human Rights And Democracy	-	3
	ENGL101	English Language-1	1	-
	COMA105	Computer Application 1	1	-
First year/second semester	BIOC121	Biochemistry	2	3
	AGEP122	Agricultural Economic Principles	2	3
	MATH123	Mathematic	2	-
	SOSP124	Soil Sciences Principles	2	-
	ANPP125	Animal Production Principles	2	3
	COMA106	Computer Application 2	2	3
	ARAL108	Arabic Language	0	3
Second year/first semester	HOSP211	Horticulture Science Principles	2	-
	AGMI212	Agricultural Machines and Implements	2	3
	AGEP213	Agricultural Extension Principles	2	3
	FOTP214	Food Technology Principles	2	-
	SOFF215	Soil fertility and fertilizer	2	3
	PLTA216	Plant Taxonomy	2	3
	COMA205	Computer Applications 3	2	3
	ENGL202	English Language 2	-	3
	BARC217	Baath Regime Crimes	1	-
Second year/second semester	FAMA221	Farms Management	2	-
	SUOC222	Sugar and Oil Crops	2	3
	STPR223	Statistics Principles	2	3
	PLEC224	Plant Ecology	2	3
	MIPR225	Microbiology Principles	2	3
	IRDR226	Irrigation and Drainage	2	3
	COMA206	Computer Applications 4	1	-
Third year/first semester	GENE311	Genetics	-	3
	EXDA312	Experimental Designs and Analysis	2	3
	CECR313	Cereal Crops	2	3

	FICI314	Field Crops Insects	2	3
	LARE315	Land Reclamation	2	3
	FOCR316	Forage Crops	2	3
	ENGL303	English Language 3	2	3
Third year/second semester	FICR321	Fiber Crops	1	-
	FICM322	Field Crops Machines	2	3
	LECR323	Legume Crops	2	3
	FICD324	Field Crops Diseases	2	3
	BEBR325	Bee Breeding	2	3
	SETE326	Seed Technology	2	3
Fourth year/first semester	DRPL411	Drug Plants	2	3
	PLPH412	Plant physiology	2	3
	WEBI413	Weed Biology	2	3
	FICM414	Field Crops Management	2	3
	LACU415	Land Cultivation	2	3
	MOGE416	Molecular Genetics	2	3
	REPR417	Research Project	2	3
	ENGL404	English Language 4	-	3
Fourth year/second semester	PLBR421	Plant Breeding	1	-
	PLGR422	Plant growth Regulators	2	3
	WECO423	Weed Control	2	3
	PAMA424	Pastures Management	2	3
	ECST425	Ecological Stress	2	3
	SEMN404	Seminar	2	3
	REPR427	Research project	1	-

12. Expected learning outcomes of the program

Knowledge

- 1- Introducing the student to the theories related to different field crops.
- 2- Understanding methods of growing field crops and methods of field management.
- 3- Understanding and solving agricultural problems related to field crops.
- 4- Enabling the student to understand the science of field crops and equipping various relevant departments with specialized scientific cadres
- 5- Teaching students the management methods used in various crop cultivation projects.
- 6- Teaching students to diagnose diseases and insects infecting field crops and finding ways to combat them.

Skills

- 1- Providing the student with the skills to carry out agricultural operations for various field crops.
- 2- Preparing agricultural cadres capable of dealing with field crop plants, spreading their cultivation, and how to sustain the areas cultivated with them.
- 3- Enabling the student to be able to diagnose problems in field crop cultivation and conduct procedures.
- 4- Preparing students to advance the crops that the department is interested in in its study programs.

Ethics

- 1- Having the ability to ask questions and answer them in the classroom.
- 2- Defining the problem and its solution.
- 3- Learn the correct ways of thinking.
- 4- A case study in graduation research and how to solve it

13. Teaching and Learning Strategies

- 1- Using the method of delivering information through the lecture, using the whiteboard, a data display device, an interactive lecture, and displaying an educational video that provides the opportunity to watch field or laboratory operations.

- 2- Involving students in obtaining information by asking them to submit scientific reports on specific paragraphs of the curriculum, ensuring the expansion of the student's cognitive ability and training him on means of accessing information to maintain the up-to-dateness of his information in the future.
- 3- Training students in the method of logical discussion to reach results, as well as the method of deduction.
- 4- Training the student on educational commitment to behavior inside the lecture hall, in the laboratory, field, or greenhouses, ensuring the prevalence of sound behavior in the educational institution and after graduation.
- 5- Learning through applied field practices and providing the opportunity for students to apply knowledge in the field.

14. Evaluation methods

- 1- Daily exams.
- 2- Reports.
- 3- Monthly exams.
- 4- Practical exams.
- 5- The final exam, both theoretical and practical.
- 6- Summer training in government departments and submitting a report.

15. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Agricultural Extension	Transfer of agricultural techniques			1	
Professor	Plant protection	Viral diseases			1	
Assistant Professor	Field crops	Crops production			1	
Assistant Professor	Food sciences	Food chemistry				
lecturer	Field crops	Weed control			1	
lecturer	Field crops	Crop production			2	
lecturer	Field crops	Seed technology			1	
lecturer	Field crops	Crop breeding			1	
lecturer	Chemistry Science	organic chemistry			1	
Assistant lecturer	Law	Law			1	
Assistant lecturer	Arabic Language	Arabic Language			1	

Professional Development

Mentoring new faculty members

A regular meeting of the Department Council is held twice a month in order to convey the directives of the Dean of the College as well as the directives of the Department Head regarding department affairs, following up on students and the progress of the educational process, as well as encouraging them for scientific research. We also communicate with them through social media to guide them.

Professional development of faculty members

Annual plans are developed to update course curricula through the department's Curriculum Modernization Committee. A semi-annual plan is also prepared for the research that the department's staff seeks to accomplish and the use of modern teaching and evaluation methods that employ modern communication technology, as well as the results of teaching methods research.

16. Acceptance Criterion

The department sets a plan for accepting students according to capacity, the number of teaching staff, and the provision of academic supplies. On this basis, the department requests the specified number of students to join it, but achieving the required number is affected by several factors, including the number of students accepted into the college distributed through central admission in the Ministry, and the student's desire for the specialty in which he wishes to complete his studies.

17. The most important sources of information about the program

- 1- Curriculum books for free education.
- 2- Internet resources through the Internet Division.
- 3- Reference books, master's theses, and doctoral theses in the department and college libraries.

18. Program Development Plan

- 1- Concluding joint cooperation agreements with relevant agricultural institutions for the purpose of creating job opportunities for graduates of the Field Crops Department, as well as providing those institutions with the results of scientific research reached by researchers in the department.
- 2- Taking advantage of agricultural companies in the private sector to utilize their capabilities to enhance the learning process for students in the department as well as creating job opportunities for graduates.
- 3- Providing the department's laboratories with modern laboratory equipment and benefiting from them to supplement the department's financial inputs by operating those laboratories to serve agricultural institutions and private sector companies after paying the financial fees.
- 4- Increasing the rate of scientific publishing by the department's faculty, especially in scientific journals classified within the international databases.
- 5- Providing the department's staff with scientific specializations, including two teachers, by creating attractive factors for them, and working to encourage the current staff to advance academically to higher ranks.

Program Skills Outline															
Year/Level	Course Code	Course Name	Basic or optional	Required program Learning outcomes											
				Knowledge						Skills			Ethics		
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year/first semester	ORCH111	Organic Chemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	GEPL112	General Plant	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLSU113	Plane Surveying	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FICP114	Field Crops Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENDR115	Engineering Drawing	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	HURD116	Human Rights And Democracy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENGL101	English Language-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	COMA105	Computer Application 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
First year/second semester	BIOC121	Biochemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	AGEP122	Agricultural Economic Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	MATH123	Mathematic	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SOSP124	Soil Sciences Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ANPP125	Animal Production Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	COMA106	Computer Application 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ARAL108	Arabic Language	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Second year/first semester	HOSP211	Horticulture Science Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	AGMI212	Agricultural Machines and Implements	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	AGEP213	Agricultural Extension Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FOTP214	Food Technology Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SOFF215	Soil fertility and fertilizer	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLTA216	Plant Taxonomy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	COMA205	Computer Applications 3	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENGL202	English Language 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BARC217	Baath Regime Crimes	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Second year/second semester	FAMA221	Farms Management	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SUOC222	Sugar and Oil Crops	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	STPR223	Statistics Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLEC224	Plant Ecology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	MIPR225	Microbiology Principles	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	IRDR226	Irrigation and Drainage	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	COMA206	Computer Applications 4	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Third year/first semester	GENE311	Genetics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	EXDA312	Experimental Designs and Analysis	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	CECR313	Cereal Crops	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FICI314	Field Crops Insects	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	LARE315	Land Reclamation	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FOCR316	Forage Crops	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENGL303	English Language 3	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Third year/second semester	FICR321	Fiber Crops	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FICM322	Field Crops Machines	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	LECR323	Legume Crops	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FICD324	Field Crops Diseases	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BEBR325	Bee Breeding	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SETE326	Seed Technology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Fourth year/first semester	DRPL411	Drug Plants	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLPH412	Plant physiology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	WEBI413	Weed Biology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FICM414	Field Crops Management	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	LACU415	Land Cultivation	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	MOGE416	Molecular Genetics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	REPR417	Research Project	Basic	*	*	*	*	*	*	*	*	*	*	*	*
ENGL404	English Language 4	Basic	*	*	*	*	*	*	*	*	*	*	*	*	
Fourth year/second semester	PLBR421	Plant Breeding	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLGR422	Plant growth Regulators	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	WECO423	Weed Control	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PAMA424	Pastures Management	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ECST425	Ecological Stress	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SEM404	Seminar	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	REPR427	Research project	Basic	*	*	*	*	*	*	*	*	*	*	*	*

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

Model description of the decision

1. Name of Rapporteur					
Organic chemistry					
2. Symbol of decision					
ORCH111					
3. Chapter/year					
First semester/ First year					
4. Date of preparation of this description					
28/03/2024					
5. Forms of presence available					
Mandatory					
6. Number of hours (total)/ number of units (total)					
(5) hours of (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)					
7. Name of the course administrator (if more than one name is mentioned)					
Name: M.; Memorial of Thikra Ahmad Hassan e-mail: thikra.ahmed@uokirkuk.edu.iq					
8. Objectives of the decision					
Organic chemistry of the second stage deals with the study and determination of physical constants of organic compounds such as the degree of fusion, boiling and others and knowledge of how to purify the organic compound by laboratory methods and how to separate compounds from each other and detect the unknown organic compound by color methods has been interacted between the practical and theoretical aspect of the student to benefit from the greatest amount of information					
** Knowledge of this area					
9. Teaching and learning strategies					
1- describe methods of assigning physical constants to organic compounds such as the degree of fusion					
** And boiling. 2- Describe the general methods of purification					
3 - Study and identify methods of separation and detection of the unknown organic compound					
.1.					
The Week	Hourse	Required learning outcomes	Name of unit or subject	Way of learning	Method of assessment
1		Knowledge	Definition of organic chemistry, its importance and the types of interactions used in it	Lecture	Daily and monthly exam, attendance and reports
2		Knowledge	Study of alkane-saturated hydrocarbon compounds	Lecture	Daily and monthly exam, attendance and reports
3		Knowledge	Study of unsaturated alkene hydrocarbon compounds	Lecture	Daily and monthly exam, attendance and reports

4		Knowledge and skill	Study of saturated and unsaturated hydrocarbon compounds	Student groups	Daily and monthly exam, attendance and reports
5		Knowledge	Study of non-alkene hydrocarbon compounds	The lecture	Daily and monthly exam, attendance and reports
6		Knowledge and skill	Study of aromatic hydrocarbon compounds	Lecture	Daily and monthly exam, attendance and reports
7		Knowledge	The first month exam	Lecture	Daily and monthly exam, attendance and reports
8		Knowledge	** Alcohol and methods of preparation	Lecture	Daily and monthly exam, attendance and reports
9		Knowledge and skill	** Phenols have their properties and methods of preparation	Lecture+	Daily and monthly exam, attendance and reports
10		Knowledge and skill	Reactions of alcohol and phenols	Lecture	Daily and monthly exam, attendance and reports
11		Knowledge and skill	Aldehydes have their properties and methods of preparation	Lecture	Daily and monthly exam, attendance and reports
12		Knowledge and skill	Ketones have their properties, methods of preparation and reactions of aldehydes and ketones	Lecture	Daily and monthly exam, attendance and reports
13		Knowledge and skill	Second month exam	Lecture	Daily and monthly exam, attendance and reports
14		Knowledge and skill	Carboxylic acids have their properties and methods of preparation	Lecture	Daily and monthly exam, attendance and reports
15		Knowledge and skill	The Secretary and the effective group	Lecture	Daily and monthly exam, attendance and reports

11.Evaluation of the decision

Quarterly pursuit score of (40%) distributed (10) scores for daily preparation, participation and reporting, and (30) monthly exam score of two monthly exams per exam (15) score, and the final exam score of (60%)

12.Sources of learning and teaching

Lectures prepared by the teacher based on the relevant books and references.	Required books (methodology, if any)
General organic chemistry Dr. Ahmad Fathi Sayed Ahmed	Principal references (sources)
Iraqi academic scientific journals, including the Journal of Kirkuk University of Science	Recommended books and supporting references (scientific journals, reports...)
International magazines within the Scopus absorbers	Electronic references, Internet sites

Course Description Form

1. Course Name:					
General plant					
2. Course Code:					
GEPL112					
3. Semester / Year:					
First semester/ First year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: AKO GHAZI SATTAR E-mail akoghazi@uokirkuk.edu.iq					
8. Course Objectives					
. The course aims to introduce the student to the tissue structures found in plants and the processes that occur within plants such as photosynthesis, catabolism and construction processes, components of the plant cell, types and stages of cell division.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	General introduction	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	The benefits are economic	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Pure and mixed forests	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Selection of species for afforestation: Selection of local and introduced tree species	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Types of forests in the Arab world	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Stages of tree development	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Selection of species for afforestation: Selection of local and introduced tree species	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	The impact of environmental factors on forests	knowledge	lecture	Daily and monthly exam,

					attendance and reports
9	5	Division of forest types	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Botanical characteristics: forests as a diagnostic factor, plant succession, types of succession	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Biological factors: soil revival, competition, parasitism (mechanical and biological), mutual relationships between animals	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	The most common types of trees in natural forests	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Local and introduced trees in forests	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	The difference between forests in the Arab world and other countries	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Practical visits to different forests and observing the effects of living and non-living environmental conditions	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	General plant written by: Dr. Ahmed Shawqi, Dr. Badri Al-Ani, Dr. Ibrahim Al-Suhaili
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	International journals included in Scopus

Course Description Plane surveying

1. Course Name:					
Principle of plane and Topographic Surveying					
2. Course Code:					
PLSU113					
3. Semester / Year:					
Second semester/first year					
4. Description Preparation Date:					
٢/0٤/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Ali hakeem dohan Email: Alihakeem @uokirkuk.edu.iq					
8. Course Objectives					
<p>Introducing the student to the general basics of surveying and preparing him so that he has the ability to manage surveying technicians and engineers working on civil projects. Introducing the student to using some surveying devices, such as the Level device and the Theodolite device, so that he can perform the simple surveying work he needs in civil works, such as measuring levels or measuring a specific angle. Giving the student priorities for advanced surveys, such as surveying roads and measuring coordinates. This enables the student, if he wishes, to develop his capabilities in the future through courses or study so that he can be a professional surveyor and perform advanced surveying work.</p> <p>Giving the student the basic principles of surveying, training him on the use of surveying tools, and acquiring the following skills:</p> <ul style="list-style-type: none"> Introduction to various surveying sciences Using modern surveying equipment to obtain meteorology Calculating coordinates and determining locations 					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Definition of space, its types, branches and how it develops	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Basic principles of space Units of measurement	knowledge	lecture	Daily and monthly exam, attendance and reports

		(its parts, multiples) scale, (types, methods of application)	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Surveying using the measuring wheel (on the map and on the ground)	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
4	5	Longitudinal measurements and longitudinal measuring tools	knowledge	lecture	Daily and monthly exam, attendance and reports
5	5	Scanning with tape	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
6	5	Cadastral errors, their types and sources	knowledge	lecture	Daily and monthly exam, attendance and reports
7	5	Methods for measuring horizontal distances directly Knowing the obstacles that prevent measurement	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Methods of dropping columns	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
9	5	Methods of indirect measurement through a device Settlement	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Distance whiskers method and shadow method	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Anvar method	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Settlement methods	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Topographical area	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Application of measuring distances using theodolite	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5				

11.Course Evaluation

The goals can be summarized through the following points:

1. Establishing the required locations on the ground based on known points
2. Identify and determine the locations of agricultural lands and their heights above sea level

- . 3. Finding land areas according to their types directly or through maps
- . 4. Giving an idea about water resources and their distance from agricultural lands
- . 5. Assist in designing irrigation and drainage networks and constructing dams and water tanks
6. Planning the locations of agricultural roads of all types and the boundaries of forest divisions
7. Determine the types and densities of vegetation cover in different areas using aerial photographs and remote sensing methods
8. Providing the necessary information for constructing agricultural buildings
9. Providing the necessary information for making contour lines, terraces, and corrugations on slopes
10. Assist in determining the boundaries of soil units when classifying lands.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Principle of plane and Topographic Surveying written by Dr. Riad Saleh Al-Khafaf
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Field Crops Principles					
2. Course Code:					
FICP114					
3. Semester / Year:					
first semester/ fourth year					
4. Description Preparation Date:					
1/4/2024					
5. Available Attendance Forms:					
Attendance at lecture is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
5 Hours (2 hours theory , 3 hours practical per week) - Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.abbas Abdulla taha \ Email: abbasabdulla@uokirkuk.edu.iq					
8. Course Objectives					
Providing agricultural staff specialized in applied agricultural sciences, especially in the field of field crop sciences, who can create job opportunities in the private agricultural sector and begin performing the task without waiting for job opportunities to be provided for them in state institutions.					
9. Teaching and Learning Strategies					
-follow the lecture methods and use modern presentation methods -direct dialogue with student by asking them questions -Assigning student to homework (writing scientific reports)					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Cognitive	Learn about the basics of field crop science	Lecture Discussion	Daily attendance and exam
2	5	Cognitive	*Dividing field crops *Advantages of the soil and climate of Iraq	Lecture Discussion	Daily attendance and exam
3	5	Cognitive	Environmental factors affecting the growth of field crops -Heat factor	Lecture Discussion	Daily attendance and exam
4	5	Cognitive	Soil service operations	Visit the fields	Daily attendance and exam
5	5	Cognitive	The relationship of water to field crops	Lecture Discussion	Daily attendance and exam
6	5	Cognitive	Water and land relationships of plants	Lecture Discussion	Daily attendance and exam
7	5	Cognitive	Light and its relationship to crop	Lecture	Daily attendance

			growth	Discussion	and exam
8	5	Cognitive	Weeds and ways to combat them	Lecture Discussion	Daily attendance and exam
9	5	Cognitive	Crop service operations	Visit the fields	Daily attendance and exam
10	5	Cognitive	Life factors and their impact on crop production	Lecture Discussion	Daily attendance and exam
11	5	Cognitive	Plant seeds and factors affecting them	Lecture Discussion	Daily attendance and exam
12	5	Cognitive	Agricultural pests that affect field crops	Lecture Discussion	Daily attendance and exam
13	5	Cognitive	Tools used to control agricultural pests	Lecture Discussion	Daily attendance and exam
14	5	Cognitive	Processes of collecting, purifying and storing crop products	Lecture Discussion	Daily attendance and exam
15	5	Cognitive	Harvesting, storing and drying plants	Lecture Discussion	Daily attendance and exam

11.Course Evaluation

Final theoretical exam	Final practical test	Daily theoretical tests	Practical semester tests	Theoretical semester tests
40	20	5	15	20

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of field crops / Dr. Majeed Mohsen Al-Ansari Dr. Abdul Majeed Ahmed Al-Younes, Dr. Ghanem Saadallah Hasawi, and Dr. Wafqi Shaker Al-Shammaa
Main references (sources)	Scientific journals in agricultural and economic specialities
Recommended books and references (scientific journals, reports...)	International journals within international classifications and standards
Electronic References, Websites	International journals within international classification and standards

Course Description Form

1. Course Name:					
Engineering drawing					
2. Course Code:					
ENDR115					
3. Semester / Year:					
First semester /first year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
((3) hours for the practical part, number of units (٣)					
7. Course administrator's name (mention all, if more than one name)					
Name: MA-NIHAYAT HUSSEIN AMEEN Email: mnas_int@uokirkuk.edu.iq					
8. Course Objectives					
<p>1. Introducing a student to general concepts and definitions in drawing. Engineering drawing is considered a language with its own rules and foundations that can only be practiced by those who have studied it properly. The extent of achievement in it depends on practice and complete accuracy.</p> <p>2. Introduce the student to the basics of dimensions and basic measurements</p> <p>Skill objectives for introducing the student to examples of dimensions, measurements, projection, and engineering design.</p>					
9. Teaching and Learning Strategies					
<p>Understand all the engineering properties of an entity or product in a clear and correct manner. Through education and training, gain knowledge of the basics and scientific engineering concepts.</p> <p>2- Presenting questions about the topic to demonstrate students' understanding through their answers</p> <p>3- Conducting daily and monthly exams, preparing practical reports, and doing descriptive homework assignments</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Lectures + exercises and practical observations	. historical overview of the science of engineering drawing and its principles Definitions and explanation of scientific terms	Lectures + applications and drawings	Daily questions + tests
2	3	Lectures + exercises and practical observations	Representing objects by reducing and enlarging measurements Examples of scale operations	Lectures + applications and drawings	Daily questions + tests
3	3	Lectures + exercises and practical observations	Modern and basic multi-purpose drawing tools Basics of using tools	Lectures + applications and drawings	Daily questions + tests
4	3	Lectures + exercises and practical observations	Identify the types of lines used in engineering drawings, the rules for implementing them, arranging the drawing paper and data table, and writing numbers and letters	Lectures + applications and drawings	Daily questions + tests
5	3	Lectures + exercises and	Engineering operations	Lectures +	Daily questions +

		practical observations	(dividing lines and erecting columns), direct drawings, connecting future lines, arcs, and tangents Examples and drawings	applications and drawings	tests
6	3	Lectures + exercises and practical observations	Regular polygons, parabolas and ellipses Examples and drawings	Lectures + applications and drawings	Daily questions + tests
7	3	Lectures + exercises and practical observations	Examination	Lectures + applications and drawings	Daily questions + tests
8	3	Lectures + exercises and practical observations	Projective drawing/drawing sections parallel to basic levels	Lectures + applications and drawings	Daily questions + tests
9	3	Lectures + exercises and practical observations	Determine the position of the drop on the plate Examples and drawings	Lectures + applications and drawings	Daily questions + tests
10	3	Lectures + exercises and practical observations	(Intersections in projections)	Lectures + applications and drawings	Daily questions + tests
11	3	Lectures + exercises and practical observations	Basic rules for setting dimensions	Lectures + applications and drawings	Daily questions + tests
12	3	Lectures + exercises and practical observations	Geometric perspective - xometric projection	Lectures + applications and drawings	Daily questions + tests
13	3	Lectures + exercises and practical observations	Sectional projections	Lectures + applications and drawings	Daily questions + tests
14	3	Lectures + exercises and practical observations	Rules for drawing engineering sectors	Lectures + applications and drawings	Daily questions + tests
15	3	Lectures + exercises and practical observations	Examination	Lectures + applications and drawings	Daily questions + tests

1. Course Evaluation

Daily and monthly tests
Participate by asking questions and opening scientific discussions related to the academic subject
Student activities through research, reports, and home and class assignments
And illustrations related to the study material

2. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to engineering drawing for students of the College of Agriculture - Dr. Spokesman Sabri Hassan. Mosul University Press
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, US

Course Description Form

1. Course Name:

Human Rights and Democracy

2. Course Code:

HURD116

3. Semester / Year:

first semester/first year

4. Description Preparation Date:

28/03/2024

5. Available Attendance Forms:

Mandatory

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

(2) Hours, Number of units (2)

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

Name: Assist Prof. Basira Abdullah Ahmed **Email:** baseraabdullah@uokirkuk.edu.iq

8. Course Objectives

To make the student able to recognize human rights in internal laws and international charters, and to become familiar with the concept of democracy, the various systems of elections, and the means of assigning authority

9. Teaching and Learning Strategies

Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The historical stages through which the idea of human rights passed	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	2	Humanrights in constitutional documents International human rights documents	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	2	Human rights in Islamic law are political and social, and the state's responsibility to guarantee them is positive e right to life, the right to physical integrity, the right to privacy,	Knowledge	lecture	Daily and monthly exam, attendance and reports
4	2	The right to nationality right to abolish slavery and slavery The right to self-determination	Knowledge , skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	2	Guarantees to prevent attacks on human rights	knowledge	lecture	Daily and monthly exam, attendance and reports

6	2	1-Human rights guarantees in Islamic law	Knowledge , skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	2	the right to movement Intellectual rights and freedoms	knowledge	lecture	Daily and monthly exam, attendance and reports
8	2	The concept of freedom, the concept of anarchy, the concept of democracy, the historical development of the concept of democracy in the Mesopotamian civilization	knowledge	lecture	Daily and monthly exam, attendance and reports
9	2	The pillars of democracy, the basic conditions of the democratic system and its characteristics	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports
10	2	Features of the democratic system, types of democracy	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports
11	2	Forms of the system: indirect democracy, democracy, its concept, and manifestations	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports
12	2	Different systems of elections	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports
13	2	Democracy applications	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports
14	2	Civil,society,democratic values and its functions	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports
15	2	The report on human rights in Islam comprehended and surpassed all hypothetical trends, ancient and modern	Knowledge , skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Human Rights and Democracy / Dr. Ghassan Karim Majhab, Amjad Zein Al-Abidin Tohm
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:

English language 1 / beginner level

2. Course Code:

ENGL101

3. Semester / Year:

First semester/first year

4. Description Preparation Date:

31/03/2024

5. Available Attendance Forms:

Mandatory

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

(1) Hours, Number of units (1)

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

Name: Berevan Qader Omar **Email:** beree.omer@gmail.com

8. Course Objectives

Teaching this curriculum aims to make the student familiar with the English language as an international language that help the student get benefits from it in his scientific life widely .

9. Teaching and Learning Strategies

It is a semi-integrated curriculum for the beginner level that includes the necessary basics for learning English language in a simplified way with exercises. It includes nouns, verbs, interrogatives, adjectives, and adverbs.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction to part of speech in English	Knowledge	lecture	Exercise
2	1	Nouns in English	Knowledge	lecture	Exercise
3	1	Singular and plural	Knowledge	lecture	Exercise
4	1	Question words	Knowledge	lecture	Exercise
5	1	Tense of verbs	Knowledge	lecture	Exercise
6	1	Present simple for beginner	Knowledge	lecture	Quiz
7	1	Present continuous for beginner	Knowledge	lecture	Exercise
8	1	Past simple for beginner	Knowledge	lecture	Exercise
9	1	Past continuous for beginner	Knowledge	lecture	Exercise

10	1	adjectives	Knowledge	lecture	quiz
11	1	Pronouns	Knowledge	lecture	quiz
12	1	adverbs	Knowledge	lecture	Exercise
13	1	Adverb of frequency	Knowledge	lecture	Exercise
14	1	Some & any	Knowledge	lecture	Exercise
15	1	Modal verbs	Knowledge	lecture	Quiz

11.Course Evaluation

Semester endeavor (40 marks): 15 marks for the first month exam + 5 marks for quiz
15 marks for second month exam + 5 marks for quiz
Final exam (60 marks)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway plus (beginner student book written by : john and liz soars
Main references (sources)	Cambridge press
Recommended books and references (scientific journals, reports...)	My English library website
Electronic References, Websites	You tube and some useful websites

Course Description Form

1. Course Name:					
Computer/1					
2. Course Code:					
COMA105					
3. Semester / Year:					
first semester/ first year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) Hours, Number of units (1)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist Hala Hassan Abdullah Email: halahhasan@uokirkuk.edu.iq					
8. Course Objectives					
Developing the student's abilities to use the Windows operating system, studying its practical applications, and guiding the student on how to benefit from this system in his field of study.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, and using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention and activate the thinking strategy according to the student's ability.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Cognitive and skillful	What is an operating system, its functions and goals	lecture	Daily and monthly exam, attendance and reports
2	3	Cognitive and skillful	Windows7 operating system	Lecture	Daily and monthly exam, attendance and reports
3	3	Cognitive and skillful	Requirements for its installation and desktop components	Lecture	Daily and monthly exam, attendance and reports
4	3	Cognitive and skillful	Dealing with menus and icons The main entrances to the system (icons	lecture	Daily and monthly exam, attendance and reports

5	3	Cognitive and skillful	Turn off the computer Window control Desktop quick menu	lecture	Daily and monthly exam, attendance and reports
6	3	Cognitive and skillful	خلفيات سطح المكتب Desktop Background	lecture	Daily and monthly exam, attendance and reports
7	3	Cognitive and skillful	طريقة انشاء المجلد Folder حذف المجلدات Folder delete	lecture	Daily and monthly exam, attendance and reports
8	3	Cognitive and skillful	Practical exam	lecture	Daily and monthly exam, attendance and reports
9	3	Cognitive and skillful	Explanation of menus, explanation of window components, icon bar	lecture	Daily and monthly exam, attendance and reports
10	3	Cognitive and skillful	Right-click menu of folders and files	lecture	Daily and monthly exam, attendance and reports
11	3	Cognitive and skillful	How to view the Start menu and its properties	lecture	Daily and monthly exam, attendance and reports
12	3	Cognitive and skillful	Task Bar right button menu	lecture	Daily and monthly exam, attendance and reports
13	3	Cognitive and skillful	Taskbar properties	lecture	Daily and monthly exam, attendance and reports
14	3	Cognitive and skillful	Control Panel	lecture	Daily and monthly exam, attendance and reports
15	3	Cognitive and skillful	Practical exam	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
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Main references (sources)	<p>Computer basics and office applications (Part forth) / Ziad Muhammad Aboudi, Ghassan Hamid Abdel Majeed, Mustafa Daa Al-Hassani</p> <p>Osama Al-Hajri, Basics of Operating Systems, Jordan, Amman, 2004.</p> <p>Dargham Muhammad Saleh, Windows XP, Dar Al-Israa for Publishing and Distribution, Jordan, Amman, 2005.</p>
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Website	International journals .

Model description of the decision

1. Name of Rapporteur					
Biochemistry					
2. Decision code					
BIOC121					
3. Chapter/year					
Second semester/first year					
4. Date of preparation of this description					
28/03/2024					
5. Forms of presence available					
Mandatory					
6. Number of hours (total)/ number of units (total)					
(5) hours of (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)					
7. Name of the course administrator (if more than one name is mentioned)					
Name: M. D. Dakhri Ahmed Hassan email: thikra.ahmed@uokirkuk.edu.iq					
8. Objectives of the decision					
** Have an understanding of the basic topics in biochemistry and their applications in the field of laboratories with appropriate knowledge of the different axes of chemistry.					
9. Teaching and learning strategies acquire a reasonable level of chemical knowledge commensurate with what is recognized among the different universities of the world, especially the sober ones.					
Method of assessment	Way of learning	Name of unit or subject	Required learning outcomes	Hours	The week
Daily and monthly exam, attendance and reports	Lecture	Biochemistry and its fields The components of the living cell and its functions	Knowledge	5	1
Daily and monthly exam, attendance and reports	Lecture	Carbohydrates – their importance is defined by their sections	Knowledge	5	2
Daily and monthly exam, attendance and reports	Lecture	Single sugars - similar In monosaccharides - the derivatives of monosaccharides - the ring structure of sugars	Knowledge	5	3
Daily and monthly exam, attendance and reports	Student groups	Low-lying polysaccharides – their reduced and unreduced types	Knowledge and skill	5	4
Daily and monthly exam, attendance and reports	Scientific trips to some departments in the province	Many homogeneous and heterogeneous sugars	Knowledge	5	5
Daily and monthly exam, attendance and reports	Lecture	The first month exam	Knowledge and skill	5	6
Daily and monthly exam, attendance	Lecture	Fat – define its importance – fatty acids its sections – their composition	Knowledge	5	7

and reports		– their interactions – geometric similarities to fatty acids			
Daily and monthly exam, attendance and reports	Lecture	Fat sections - simple fats - types (oils, fats and candles) - their composition - fat constants	Knowledge	5	8
Daily and monthly exam, attendance and reports	Lecture	And the shape and shape of the boat – the shape of it	Knowledge and skill	5	9
Daily and monthly exam, attendance and reports	Lecture	Amino acids – their sections – their structures – amino acid properties – their interactions	Knowledge and skill	5	10
Daily and monthly exam, attendance and reports	Student groups	Peptides – proteins – defined by their sections – protein synthesis levels – denera	Knowledge and skill	5	11
Daily and monthly exam, attendance and reports	Lecture	Second month exam	Knowledge and skill	5	12
Daily and monthly exam, attendance and reports	Lecture	Nucleic acids – their importance as nucleotides – their functions – their composition – types of nucleic acids	Knowledge and skill	5	13
Daily and monthly exam, attendance and reports	Lecture	Enzymes – defined – the mechanism of action of the enzyme – classified – inert and active enzymes – factors affecting the speed of the enzymatic reaction	Knowledge and skill	5	14
Daily and monthly exam, attendance and reports	Lecture	Explain the lock and key theory	Knowledge and skill	5	15

10.Evaluation of the decision

Quarterly pursuit score of (40%) distributed (10) scores for daily preparation, participation and reporting, and (30) monthly exam score of two monthly exams per exam (15) score, and the final exam score of (60%)

11.Sources of learning and teaching

Lectures prepared by the teacher based on the relevant books and references.	Required books (methodology, if any)
Chemical by the Dalai Lama	Principal references (sources)
Iraqi academic scientific journals, including the Journal of the University of Kirkuk for Chemical Sciences Biochemistry and its fields	Recommended books and supporting references (scientific journals, reports...)
International magazines and Scopas absorption magazines	Electronic references, Internet sit

Course Description Form

1. Course Name:					
Agricultural Economic Principles					
2. Course Code:					
AGEP122					
3. Semester / Year:					
Second semester/ First year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2) Hours, Number of units (2)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. khattab Abdullah Mohammed Email: khattab1981@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge about general concepts in the economy in general and its types, economic systems and the importance of the agricultural sector among other economic sectors, identifying the most important problems facing it and ways to reduce them, and displaying and marketing agricultural commodities.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	knowledge	General concepts in economics	lecture	Daily and monthly exam, attendance and reports
2	2	knowledge	Types of economy, economic systems, productive resources	lecture	Daily and monthly exam, attendance and reports
3	2	knowledge	The importance of the agricultural sector	lecture	Daily and monthly exam, attendance and reports
4	2	Knowledge, skills and attitudes	Economic characteristics of contemporary agriculture	lecture	Daily and monthly exam, attendance and reports
5	2	knowledge	Risk and uncertainty in	lecture	Daily and monthly exam, attendance and

			agricultural work		reports
6	2	Knowledge, skill and attitude	Production function	lecture	Daily and monthly exam, attendance and reports
7	2	knowledge	Demand for agricultural commodities and its types	lecture	Daily and monthly exam, attendance and reports
8	2	knowledge	Factors affecting demand for agricultural commodities	lecture	Daily and monthly exam, attendance and reports
9	2	Knowledge, skill	Elasticity of demand and its types	lecture	Daily and monthly exam, attendance and reports
10	2	Knowledge, skill	Display agricultural commodities	lecture	Daily and monthly exam, attendance and reports
11	2	Knowledge, skill	Factors affecting the supply of agricultural commodities	lecture	Daily and monthly exam, attendance and reports
12	2	Knowledge, skill	Flexibility of supply and its types	lecture	Daily and monthly exam, attendance and reports
13	2	Knowledge, skill	Agricultural production function	lecture	Daily and monthly exam, attendance and reports
14	2	Knowledge, skill	Economic problems: unemployment	lecture	Daily and monthly exam, attendance and reports
15	2	Knowledge, skill	Economic problems: inflation	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Principles of Agricultural Economics, written by Ali Jadoua Al-Sharaf
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:	Mathematics 1
2. Course Code:	MATH123
3. Semester / Year:	Second semester/ First year
4. Description Preparation Date:	31/3/2024
5. Available Attendance Forms:	Classroom attendant
6. Number of Credit Hours (Total) / Number of Units (Total)	Number of Credit Hours (2) / Number of Units (2)
7. Course administrator's name (mention all, if more than one name)	
Name: Susan Ibrahim Hassan	Email: susanih@uokirkuk.edu.iq
8. Course Objectives	<ul style="list-style-type: none"> Acquire the necessary knowledge of the physical object and understand the meanings and whys of each mathematical concept. Apply the steps to solve the mathematical problem by analyzing the problem and developing a solution plan. Helping the student learn more about new sciences in the learning environment. It helps develop deductive thinking, reasoning and contemplation skills.
9. Teaching and Learning Strategies	<ul style="list-style-type: none"> Encourage students to participate in the lesson by solving problems and interacting with the materials actively. Providing opportunities for students to apply mathematical concepts in real-life contexts. Creating inspiring and intriguing mathematical challenges to motivate students and encourage them to develop their mathematical skills. Encourage students to work together in groups to solve mathematical problems and discuss ideas. Provide immediate and constructive feedback to students on their performance and understanding of material.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understand the basic concepts of real numbers and intervals including natural numbers, integers, decimals, and rational numbers.	Real numbers and intervals	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
2	2	Ability to apply mathematical concepts in solving a variety of problems related to linear and quadratic inequalities	Linear and quadratic inequalities	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
3	2	Ability to apply mathematical concepts in solving a variety of problems related to absolute and fractional inequalities	Absolute and Fractional Inequalities	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
4	2	An ability to accurately draw simple functions and understand the relationship between the equation and form of a function.	Drawing simple functions, incrementing and decreasing functions	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
5	2	Understand mathematical patterns related to even, odd, and symmetrical functions, such as	Even and odd and conflicting functions, some	Solving exercises on the board with participation of	Student discussion, board solution, daily exam and homework

		symmetry and symmetry.	common functions	student.	solutions.
6	2	An ability to apply trigonometric functions in solving practical and realistic problems.	Trigonometric functions, laws of trigonometric functions	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
7	2	exam			
8	2	Develop the ability to analyze geometrically drawn functions, determine their domains and extent, and understand how value changes affect the shape of a graph.	Domain and range of functions drawn (geometrically)	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
9	2	Learn how to determine the range of variability of a function and the set of values it takes.	Domain and range of functions mathematically	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
10	2	Understand the basics of the ends of functions and apply it effectively in solving mathematical problems.	Find the ends of the functions	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
11	2	Learn the concept of continuity of functions and know the conditions necessary for a function to be continuous at a certain point or in a specific set of points.	Continuity of functions	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
12	2	Know the derivative in general and understand the mathematical definition of the derivative.	Derivation by definition	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
13	2	It helps students understand the laws of derivatives comprehensively and practically and enables them to use them efficiently in solving a variety of mathematical problems.	Derivative laws	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
14	2	Knowledge of integration and its importance in mathematics and scientific and engineering applications, including understanding the concept of space under the curve and the area between two curves.	Integration	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework solutions.
15	2		Exam		

11. Course Evaluation

Daily Exam, Participation and Attendance (5%) + Monthly Exam (35%) + Final Exam (60%)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Calculus by Thomas
Main references (sources)	Calculus by James Stewart
Recommended books and references (scientific journals, reports...)	Introduction to Mathematical Statistics" by Robert V. Hogg, Joseph W. McKean, and Allen T
Electronic References, Websites	Khan Academy (https://www.khanacademy.org/)

Course Description Form

1. Course Name:					
Principles of soil science					
2. Course Code:					
SOSP124					
3. Semester / Year:					
Second Semester / First Year					
4. Description Preparation Date:					
1/4/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours (2) hours for the theoretical part and (3) hours for the practical part, the number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Dalshad Rasool Azeez Email: dr_dalshad@uokirkuk.edu.iq Assist. Lecturer.Noorjan Essmat Noori essmat.noorjan@uokirkuk.edu.iq					
8. Course Objectives					
<p>Course Objectives</p> <p>1- Introducing the student to the role of each component of the soil in the development of the soil. 2- Knowledge of soil formation factors and processes.</p> <p>3- The importance and role of agricultural soil.</p>					
9. Teaching and Learning Strategies					
The course includes the concepts of the soil and its main components, soil factors and processes, and the study of its physical properties (soil structure - soil texture - bulk and real density - porosity - soil color - soil temperature - soil air) and chemical properties (soil solution - acidity - salinity - organic matter content - fertility)					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Cognitive	Soil concepts and main soil components	Lecture	Daily and monthly exam, attendance and reports
2	5	Cognitive	Rock weathering / soil formation factors and processes	Lecture	Daily and monthly exam, attendance and reports
3	5	Cognitive	Main soil horizons / profile and soil pedoun	Lecture + Field Visit	Daily and monthly exam, attendance and reports
4	5	Cognitive	Physical properties of soil / soil texture	Lecture + Laboratory	Daily and monthly exam, attendance and reports
5	5	Cognitive	Soil construction (soil structure	Lecture + Laboratory	Daily and monthly exam, attendance and reports
6	5	Cognitive	Soil Water/Water Constants/Physics Classification of Soil Water	Lecture + Laboratory	Daily and monthly exam, attendance and reports
7	5	Cognitive	Bulk and particale density of soil - porosity	Lecture + Laboratory	Daily and monthly exam, attendance and reports
8	5	Cognitive	Soil color/soil air/soil temperature	Lecture + Laboratory	Daily and monthly exam, attendance and reports
9	5	Cognitive	Chemical properties of soil / soil solution / degree of soil reaction	Lecture + Laboratory	Daily and monthly exam, attendance and reports
10	5	Cognitive	Cationic exchange capacity/base saturation ratio	Lecture	Daily and monthly exam, attendance and reports

11	5	Cognitive	Soil colloids/absorption and adsorption	Lecture	Daily and monthly exam, attendance and reports
12	5	Cognitive	Soil salinity and reclamation of soils affected by salts	Lecture + Laboratory	Daily and monthly exam, attendance and reports
13	5	Cognitive	Soil fertility and plant nutrition	Lecture + Laboratory	Daily and monthly exam, attendance and reports
14	5	Cognitive	Organic soil matter	Lecture + Laboratory	Daily and monthly exam, attendance and reports
15	5	Cognitive	Biological properties of the soil	Lecture + Laboratory	Daily and monthly exam, attendance and reports

11.Course Evaluation

The degree of quarterly pursuit of (40%) distributed (5) degrees for daily preparation, participation and reporting, and (25) degrees of theoretical monthly exams by two monthly exams, and (10) degrees of practical monthly exams by two monthly exams and the final exam score of (60%) distributed (40) degrees for the theoretical part and (20) degrees for the practical part.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Principles of Soil Science - authored by Dr. Abdullah Najm Al-Ani 1980 Al-Bashour, Methods of Soil Analysis of Arid and Semi-Arid Areas, authored by Essam Al-Bashour and Antoine Al-Sayegh.2007.
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International magazines within Scopus containers

Course Description Form

1. Course Name:					
Principles of Animal Production					
2. Course Code:					
ANPP125					
3. Semester / Year:					
Second semester/first year					
4. Description Preparation Date:					
29/3/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
5Hours / 3 Unit					
7. Course administrator's name (mention all, if more than one name)					
Name: Mohammed Madhi Zinalabidin Email: mehmetmadhi@uokirkuk.edu.iq					
8. Course Objectives					
<ul style="list-style-type: none"> • The student gets to know the basic principles of animal production through a brief knowledge of: • The course aims to teach the student how to care for farm animals as well as carry out field operations • Introducing the student to numbering animals, making animal records, and providing fodder caring for newborn animals 					
9. Teaching and Learning Strategies					
<p>Preparing a student with a brief knowledge of the basic principles of animal production through a brief knowledge of:</p> <ul style="list-style-type: none"> • The economic importance of wealth as well as the identification of products, eggs and breeding Sheep, cattle and buffalo. 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Recognize the economic importance Livestock and their relationship With economic integration And the future potential for expanding livestock production in this wealth	Economic importance Livestock and their relationship With economic integration And the future potential for expanding livestock production in this wealth	Lecture, demonstrations and interactive discussion	Oral and written tests, daily and monthly practical tests, and scientific reports
2	2	Identify the location of agricultural animals (livestock) in the animal kingdom	Agricultural animals (livestock) in the animal kingdom		
3	2	Identifying cows and buffalo - economic importance -	Cows and buffalo - economic importance -		

		international, Arab and local species	international, Arab and local species		
4	2	Learn about the management and care of dairy cows, beef cows and dual- purpose cows	Management and care of dairy cows, beef cows and dual- purpose cows		
5	2	Exam	Exam		
6	2	Getting to know the buffalo: economic importance – origin of the buffalo – istribution in the world – production	Economic importance – origin of the buffalo – istribution in the world – production		
7	2	Identifying sheep and goats – methods of classifying them and some international types	Sheep and goats – methods of classifying them and some international types		
8	2	Identifying local species (sheep and goats) and establishing a sheep herd	local species (sheep and goats) and establishing a sheep herd		
9	2	Identifying poultry and its economic importance - and the origins from which it was bred - and classifying poultry in the world	Poultry and its economic importance - and the origins from which it was bred - and classifying poultry in the world		
10	2	Exam	Exam		
11	2	Learn about egg production and meat production	Egg production and meat production		
12	2	Learn about poultry management and care - nutrition - fodder – physiology, reproduction and artificial insemination	Poultry management and care - nutrition - fodder – physiology, reproduction and artificial insemination		
13	2	Identifying fertilization, pregnancy and birth in cows	Fertilization, pregnancy and birth in cows		
14	2	Learn about field operations in dairy and beef cow fields	field operations in dairy and beef cow fields		
15	2	dentify improvement Genetics of farm animals- Camel horses (origin - types – Education methods)	Genetics of farm animals- Camel horses (origin - types – Education methods)		

11.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

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

Recommended books and references (scientific journals, reports...)

Principles of Animal Production” written by: Dr. Muhammad Ali Makki

Electronic References, Websites

Course Description Form

1. Course Name:					
Computer/2					
2. Course Code:					
COMA106					
3. Semester / Year:					
second semester/ first year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) Hours, Number of units (1)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist Hala Hassan Abdullah Email: halahhasan@uokirkuk.edu.iq					
8. Course Objectives					
<p>Teaching the student to be familiar with the basic rules for dealing with and managing computers to help him complete projects and prepare statistics, as it has become very necessary for the student to learn to use the computer due to the role of the Internet in many fields, including education and scientific research.</p> <p>Using Microsoft Word, studying its practical applications, and guiding the student on how to benefit from this program in his field of study.</p>					
9. Teaching and Learning Strategies					
<p>Verbal communication with students, urging them to work together in the learning process, and using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention and activate the thinking strategy according to the student's ability.</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Cognitive and skillful	Run Word 2010, program interfaces and ribbons	lecture	Daily and monthly exam, attendance and reports
2	3	Cognitive and skillful	Home tab, Clipboard, Font, and Paragraph group	Lecture	Daily and monthly exam, attendance and reports
3	3	Cognitive and skillful	Set of page layouts, page settings, and page background	Lecture	Daily and monthly exam, attendance and reports
4	3	Cognitive and skillful	A group of arrangement, display tab, and document views	lecture	Daily and monthly exam, attendance and reports

5	3	Cognitive and skillful	Insert tab, Pages group, and Tables group	lecture	Daily and monthly exam, attendance and reports
6	3	Cognitive and skillful	Table Tools tab, Table Design tab, and Layout tab	lecture	Daily and monthly exam, attendance and reports
7	3	Cognitive and skillful	Graphics group, image tools, links group	lecture	Daily and monthly exam, attendance and reports
8	3	Cognitive and skillful	Practical exam	lecture	Daily and monthly exam, attendance and reports
9	3	Cognitive and skillful	Header and footer group, text group, icon group	lecture	Daily and monthly exam, attendance and reports
10	3	Cognitive and skillful	References tab, table of contents, and footnotes group	lecture	Daily and monthly exam, attendance and reports
11	3	Cognitive and skillful	References, citations, captions, index	lecture	Daily and monthly exam, attendance and reports
12	3	Cognitive and skillful	Resource table and correspondence tab, a group for creating and merging correspondence	lecture	Daily and monthly exam, attendance and reports
13	3	Cognitive and skillful	Write and insert fields and preview the results	lecture	Daily and monthly exam, attendance and reports
14	3	Cognitive and skillful	Review and Proofreading tab, Language tab, Comments group, Tracking group	lecture	Daily and monthly exam, attendance and reports
15	3	Cognitive and skillful	Practical exam	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Mother. Ziad Muhammad Abboud and A. Ghassan Hamid Abdel Majeed and Dr. Mustafa Diao Al-Hassani,

	<p>Computer Basics and Office Applications, Microsoft Office 2010, Ministry of Higher Education and Scientific Research.</p> <p>M. Maher Aziz M. Ghaida Saeed, Microsoft Office Word 10, University of Technology, Department of Chemical Engineering.</p>
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Website	International journals .

Course Description Form

1. Course Name:					
General Arabic language					
2. Course Code:					
ARAL108					
3. Semester / Year:					
Second semester/ First year					
4. Description Preparation Date:					
3/4/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 hours/2 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Hemin Khorshid Saeed			Email: hymnsaeed@uokirkuk.edu.iq		
8. Course Objectives					
The course aims to know the parts of speech and what is related to them in terms of signs. It also aims to help student prepare to write a scientific research paper, as well as help him learn Arabic topics					
9. Teaching and Learning Strategies					
Make the student able to know the Arabic language, which includes the most important top that help the student to prepare accurate scientific research and help the student to know common errors in official books.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-	2	Definition of speech and its types, then definition of the noun, verb, and letter with their characteristics	Sections of speech and what is related to it in terms of Tags	Lecture and discussion	Oral and written tests
2-	2	Definition of the sentence, then explaining the minor and major sentences and the relationship between them	Sections of nominal and verbal sentences	Lecture and discussion	Oral and written tests
3-	2	Define hamza and then begin to explain its divisions	Write the hamza correctly	=	Oral and written tests
4-	2	Definition of dha and dha and explaining the rules of difference between them	The difference between dha and dha	=	=
5-	2	Explaining the signs of the embossed and bound tā', then explaining the qirq between them	The difference between the fatha and marbuta tā'	=	=
6-	2	Explaining the correct writing of numbers in terms of masculine and feminine	Numbers in the Arabic language	=	=

7-	2	Explaining the number of punctuation marks and how to use them in sentences	punctuation marks	=	=
8-	2	Correct writing of words that are repeated over and over in official books	Correction of incorrect words	=	=
9-	2	Explaining the virtue of vowels in the Arabic language and their effect on the meaning of words in sentences	Use movements correctly	=	=
10-	2	Correct words that are used incorrectly	Say and don't say	=	=
11-	2	Definition of the dual and explaining its conditions	Al-Muthanna is his verse	=	=
12-	2	Definition of plural and types of plural in Arabic and the work of each of them	Plural and its divisions in Arabic	=	=
13-	2	Defining that its sisters and its function in the sentence and explaining its meanings	Anne and her sisters	=	=
14-	2	Work on Kan and her sisters, then explaining the number of her sisters in the Arabic language	was and her sisters	=	=
15-	2	Defining the verbs of the Sharia and then explaining their knowledge in the sentence	Initiation verbs in Arabic	=	=

11.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

12.Learning and Teaching Resources

General Arabic language	Human rights, children and democracy
Main references (sources)	Human rights in Islamic law and international law - Human rights and their guarantees, public freedoms and human rights
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Horticulture Science Principles					
2. Course Code:					
HOSP211					
3. Semester / Year:					
First course / second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist. Prof. Dr. Raad Ahmed Medan Email: Raad132@uokirkuk.edu.iq					
8. Course Objectives					
It aims to provide knowledge and skills and teach students about horticulture and the classification of horticultural plants, in addition to teaching students to identify the families of horticultural crops (fruits, vegetables, ornamentals). Learn about service operations for horticultural crops and how to create orchards, gardens and parks. Students are also taught how to create a nursery and care for seedlings.					
9. Teaching and Learning Strategies					
Introducing students to the principles of horticulture and methods of propagating horticultural plants, whether sexual or vegetative, teaching them how to establish vegetable farms or fruit orchards and establishing nurseries for horticultural crops, as well as teaching students how to produce seeds in horticultural plants and ways to care for them in terms of storage and marketing, as well as the student's knowledge of how to Designing, coordinating and creating home gardens and parks.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and skills	Horticulture, the history of the development of horticulture and its economic importance	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge and skills	Division of horticultural plants, constructions used in horticulture	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge and skills	Environmental factors suitable for the production of horticultural crops	lecture	Daily and monthly exam, attendance and reports

4	5	Knowledge and skills	Methods of propagation in horticultural crops (sexual and asexual)	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Nurseries and methods of establishing them	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	Ornamental nurseries (first month exam)	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Field farming patterns and agricultural operations	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	Fertilizers, methods of adding them and their timing	Laboratory use	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Protected and air-conditioned environment	field	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Breeding and improving horticultural plants and seed production methods	Laboratory use	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Perennial and deciduous fruit trees	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	Vegetable plants (main crops)	+Field	Daily and monthly exam, attendance and reports
13	5	Knowledge and skills	Ornamental plants and garden architecture	lecture	Daily and monthly exam,

					attendance and reports
14	5	Knowledge and skills	Plants that need agricultural cycles (vegetables)	+Field	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	(Second month exam)	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester endeavor is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (10) grade for the practical semester exams, and (20) for the theoretical semester exams, and the final exam grade is from (60%), and the final practical exam is (20) The final theoretical exam is (40) marks

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Principles of horticulture Dr. Karim Saleh Abdul and. Saad Zaaloul Principles of Gardening, written by Dr. Faisal Rashid Nasser
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Agricultural machinery and equipment					
2. Course Code:					
AGMI212					
3. Semester / Year:					
First semester /second year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of units (٧)					
7. Course administrator's name (mention all, if more than one name)					
Name: MA-NIHAYAT HUSSEIN AMEEN Email: mnas_int@uokirkuk.edu.iq					
8. Course Objectives					
Introducing, qualifying and training students theoretically and practically:					
1- Introducing a student to general concepts and definitions in agricultural machinery and equipment and motivating them with deductive skills					
2- Introducing the student to arithmetic problems					
3- Identify the problem or obstacle and know how to find the appropriate solution					
9. Teaching and Learning Strategies					
1- Identifying the components and parts of agricultural machines, identifying the engine parts, devices and systems associated with them, and how to create productivity and energy and shifting towards more mechanical harvest technology for these machines, as well as managing, exploiting and using machines and machines in the agricultural field in a scientific and technical correct manner.					
2- Presenting questions about the topic to demonstrate students' understanding through their answers					
3- Conduct daily and monthly examinations and prepare practical reports					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Lectures + exercises and practical observations	A historical overview of the science of machinery and agricultural machinery + viewing the types of tractors and a general understanding of its components and general specifications.	Lectures + teaching-learning aids	Daily questions + tests
2	5	Lectures + exercises and practical observations	Basics of agricultural machinery and equipment classification + identifying and viewing engine parts and how they work (operation and maintenance)	Lectures + teaching-learning aids	Daily questions + tests
3	5	Lectures + exercises and practical observations	Parts of the engine and the functions of its parts and learning about the types of combustion engines (examples of types of engines) + learning about the parts of devices and systems and their maintenance	Lectures + teaching-learning aids	Daily questions + tests
4	5	Lectures + exercises and practical observations	Two- and four-stroke spark and diesel engines course + showing films about strokes and strokes and practical observations	Lectures + teaching-learning aids	Daily questions + tests
5	5	Lectures + exercises and practical observations	Power transmission devices + mathematical applications	Lectures + teaching-learning aids	Daily questions + tests
6	5	Examination	Examination	Examination	Examination
7	5	Lectures + exercises and	Lubrication and cooling systems in engines + watching timing devices, how they	Lectures + teaching-	Daily questions +

		practical observations	operate and maintain them View and maintain air and water cooling devices Watch the lubrication devices, types of filters, and how to install and clean them	learning aids	tests
8	5	Lectures + exercises and practical observations	Practice driving a tug and attaching machinery to the tug	Lectures + teaching-learning aids	Daily questions + tests
9	5	Lectures + exercises and practical observations	Fuel devices: diesel and gasoline / spark ignition devices + view fuel devices: gasoline and diesel view spark ignition devices	Lectures + teaching-learning aids	Daily questions + tests
10	5	Lectures + exercises and practical observations	transmission devices: clutch - gearbox - differential And the methods used when transferring and converting movement in agricultural machinery and equipment + viewing the transmission devices Watch the hydraulic devices, the power take-off shaft, and how to connect the equipment to the hydraulic device in the tug	Lectures + teaching-learning aids	Daily questions + tests
11	5	Lectures + exercises and practical observations	Hydraulic devices and power take-off shaft + see the types of plows and learn about them and how they operate and maintain them See the types of softeners and learn about them and how they work	Lectures + teaching-learning aids	Daily questions + tests
12	5	Lectures + exercises and practical observations	Soil tillage equipment Soil softening equipment + viewing the types of seeds and how they work	Lectures + teaching-learning aids	Daily questions + tests
13	5	Lectures + exercises and practical observations	Leveling equipment Grain seeding and agricultural equipment + view types of animal and chemical fertilizer spreaders	Lectures + teaching-learning aids	Daily questions + tests
14	5	A field visit to the fields	Chemical and animal manure spreading equipment (Spraying and fogging equipment) + conducting a study on industrial safety (use of machines and equipment)	Lectures + teaching-learning aids	Daily questions + tests
15	5	Examination	Examination	Examination	Examination

11. Course Evaluation

Daily and monthly tests

Participate by asking questions that are models of scientific discussions related to the academic subject

Submissions activities through new work and scientific reports

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	. Agricultural machines and machines - 628th edition, Yassin Has Al-Tahan, Muhammad Jassim Nimah, 2nd edition, revised and expanded - Mosul / University of Mosul
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, US

Course Description Form

1. Course Name:					
Agricultural Extension					
2. Course Code:					
AGEP213					
3. Semester / Year:					
First semester/second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2) Hours, Number of units (2)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. khattab Abdullah Mohammed Email: khattab1981@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge about agricultural extension and how to solve problems facing farmers and deliver modern agricultural techniques to implement them on their farms by employing rural leaders in extension work.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	knowledge	Definition of agricultural extension	lecture	Daily and monthly exam, attendance and reports
2	2	knowledge	The importance of agricultural extension	lecture	Daily and monthly exam, attendance and reports
3	2	knowledge	The interconnection between extension, education and agricultural research	lecture	Daily and monthly exam, attendance and reports
4	2	Knowledge, skills and attitudes	Agricultural extension philosophy	lecture	Daily and monthly exam, attendance and reports
5	2	knowledge	Principles of agricultural extension	lecture	Daily and monthly exam, attendance and reports

6	2	Knowledge, skill and attitude	Agricultural extension training	lecture	Daily and monthly exam, attendance and reports
7	2	knowledge	Extensional management	lecture	Daily and monthly exam, attendance and reports
8	2	knowledge	Leadership in agricultural extension	lecture	Daily and monthly exam, attendance and reports
9	2	Knowledge, skill	Rural leadership	lecture	Daily and monthly exam, attendance and reports
10	2	Knowledge, skill	Extensional communication	lecture	Daily and monthly exam, attendance and reports
11	2	Knowledge, skill	The process of diffusion and adoption of innovations	lecture	Daily and monthly exam, attendance and reports
12	2	Knowledge, skill	The decision-making process related to innovations	lecture	Daily and monthly exam, attendance and reports
13	2	Knowledge, skill	Methods and means of agricultural extension	lecture	Daily and monthly exam, attendance and reports
14	2	Knowledge, skill	Planning agricultural extension programs	lecture	Daily and monthly exam, attendance and reports
15	2	Knowledge, skill	Electronic agricultural extension	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Principles of agricultural extension, written by Dr. Abdullah Al-Samarrai
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Food Industry					
2. Course Code:					
FOTP214					
3. Semester / Year:					
First semester/Second Year					
4. Description Preparation Date:					
3/4/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Mustafa M. Omar Email: mustafa.mohamed@uokirkuk.edu.iq					
8. Course Objectives					
<ol style="list-style-type: none"> 1. Preparing graduates with high theoretical and practical skills to meet academic realities. 2. Students acquire knowledge of the nature of the functions of food processing and food preservation methods in academic terms. professional. 3. Learn about the types of food processing, ways of preserving food and its importance, and types and stages of food damage. 4. Know how to cheat on food products. 5. Know the food manufacturing steps of the products, from canning to marketing. 					
9. Teaching and Learning Strategies					
<ol style="list-style-type: none"> 1. Help understand the most important food industries and how to develop them. 2. Enabling students to know how to choose, grade, and peel raw materials and all transactions made prior to manufacture. 3. Provide students with skills on how to manufacture and preserve certain food products. 4. Demonstrate the most important chemical, physical, and sensory changes to which the product is exposed during manufacturing or storage and how they are damaged during manufacturing. After graduation. 5. Help students understand the subject and how to benefit from it in the future. 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Their consumption of food and how it develops later	Knowledge	lecture	Daily exam and reports
2	5	Identify the components of food	Knowledge and skills	lecture	Daily exam and reports
3	5	Identify the components of food	Knowledge and skills	lecture	Daily exam and reports
4	5	Semester test1	Knowledge and skills	lecture	Daily exam and reports
5	5	Identify the main foods	Knowledge and skills	lecture	Daily exam and reports
6	5	Discrimination on food preservation methods	Knowledge and skills	lecture	Daily exam and reports

7	5	Methods of food preservation by cooling and freezing	Knowledge and skills	lecture	Daily exam and reports
8	5	Methods of preserving hot foods (by canning)	Knowledge and skills	lecture	Daily exam and reports
9	5	Semester test 2	Knowledge and skills	lecture	Daily exam and reports
10	5	Methods of preservation by drying	Knowledge	lecture	Daily exam and reports
11	5	Beam preservation	Knowledge	lecture	Daily exam and reports
12	5	Experiments and their types	Knowledge	lecture	Daily exam and reports
13	5	Vinegar industry	and skill Knowledge	lecture	Daily exam and reports
14	5	Manufacture of rubber adhesive	Knowledge and skill	lecture	Daily exam and reports
15	5	Nannies industry	Knowledge and skill	lecture	Daily exam and reports

11.Course Evaluation

Semester endeavor (40 marks): 25 marks

The theoretical part: 20 marks Two monthly exams, 5 marks Reports 15 marks Practical part: 10 marks monthly exams, 5 marks student practical activity

Final quest (60 marks): 40 marks theoretical questions, 20 marks practical questions

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Principles of the food industry, Al-Aswad and Abdel Aziz Sawalqa.
Main references (sources)	Specialized books in the field of food industry science and its products.
Recommended books and references (scientific journals, reports...)	International periodicals and journals are stored in Clarivate and Scopus containers.
Electronic References, Websites	International periodicals and journals are stored in Clarivate and Scopus containers.

Course Description Form

1. Course Name:					
Soil Fertility					
2. Course Code:					
SOFF215					
3. Semester / Year:					
First semester/second year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assistant Professor Wael Fahmi Abdulrahman Email: waelfahmi@uokirkuk.edu.iq					
8. Course Objectives					
Learn about concepts in soil fertility, how to evaluate soil fertility, and prepare a fertilizer recommendation Study the sources, images, shapes, and factors that affect the readiness of nutrients Studying the various physiological functions of these elements and their role in plant growth Diagnosing symptoms of nutrient deficiency and treating them in the appropriate manner and time, calculating the amounts of chemical or organic fertilizers added to the soil Proposing new methods for supplying plants with nutrients (hydroponics, fertilization) and foliar nutrition					
9. Teaching and Learning Strategies					
1- Enabling students to know the various physiological functions of nutrients and their role in plant growth. Analyze plants, identify nutrients, diagnose symptoms of nutritional deficiency, and treat them in the appropriate manner and time to prepare agricultural cadres capable of addressing soil problems, especially problems resulting from salinization, high lime levels, water scarcity, drought, and desertification. . 2- Preparing qualified agricultural cadres to use scientific programs that contribute to improving the quality and quantity of production Agricultural Production . 3- Follow up on the performance of graduates in the field of work and the extent to which graduates' specifications match the market need and extent Implementing and applying what has been studied in the field of work					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3+2	View subject data word and Data Show	Introduction to the science of soil fertility, purpose, sources, general definitions.	Calculator + Lectures	Daily questions + tests
2	3+2	View subject data word and Data Show	Growth, factors affecting it, and concepts related to soil fertility and productivity.	Calculator + Lectures	Daily questions + tests
3	3+2	View subject data word and Data	Foundations and primary concepts in soil fertility and fertilization, soil	Calculator + Lectures	Daily questions + tests

		Show	as a medium for plant growth,		
٤	٣+٢	View subject data word and Data Show	Nitrogen, the functions of nitrogen in plants, forms of nitrogen in the soil and its transformations,	Calculator + Lectures	Daily questions + tests
٥	٣+٢	View subject data word and Data Show	Phosphorus, functions of phosphorus in plants, forms of phosphorus in soil and its transformations	Calculator + Lectures	Daily questions + tests
٦	Semester exam	View subject data word and Data Show	Potassium, its sources, functions of potassium in plants, images of potassium in soil and its transformations,	Calculator + Lectures	Daily questions + tests
٧	٣+٢	View subject data word and Data Show	Sulfur, functions of sulfur in plants, sources of sulfur and factors affecting oxidation.	Calculator + Lectures	Daily questions + tests
٨	٣+٢	View subject data word and Data Show	Calcium and magnesium in the soil, forms of calcium and magnesium in the soil, affecting the readiness of calcium and magnesium	Calculator + Lectures	Daily questions + tests
٩	٣+٢	View subject data word and Data Show	Micronutrients, a discussion of all the microelements with a summary of the functions of each element in the plant	Calculator + Lectures	Daily questions + tests
١٠	٣+٢	View subject data word and Data Show	Factors affecting readiness, micronutrient fertilizers with a focus on chelates and their importance, especially in limestone soils, methods for adding beneficial micronutrients, Part Two (zinc, copper, molybdenum).	Calculator + Lectures	Daily questions + tests
١١	٣+٢	View subject data word and Data Show	Organic matter in the soil, its sources, humus, nature and characteristics of humus, the importance of organic matter	Calculator + Lectures	Daily questions + tests
١٢	٣+٢	View subject data word and Data Show	Soil fertility estimation and evaluation	Calculator + Lectures	Daily questions + tests
١٣	Semester exam	View subject data word and Data Show	Second month exam	Calculator + Lectures	Daily questions + tests
١٤	٣+٢	View subject data word and Data Show	Fertilizer recommendation, objectives of fertilizer recommendation, its rules,	Calculator + Lectures	Daily questions + tests
١٥	٣+٢	View subject data word and Data Show	Assign each student to deliver a seminar and ask each student to submit a scientific report on the topics	Calculator + Lectures	Daily questions + tests

11.Course Evaluation

Daily and monthly tests through questions presented to them on the subject studied
Degrees are awarded for student participation in scientific research and reports
Student activities by creating posters and illustrations related to the academic subject

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	<ol style="list-style-type: none"> 1. Nouri Abdul Qadir Hassan and others. 1990. Soil fertility and fertilizers. College of Agriculture - University of Baghdad. 2. Saadallah Al-Naimi. 1999. Fertilizers and soil fertility. College of Agriculture and Forestry - University of Mosul. 3. Kazem Mashhout Awad. 1987. Fertilization and soil fertility. College of Agriculture - University of Basra. 4. Kazem Mashhout Awad. 1984. Practical tests of fertilizers and soil fertility. College of Agriculture - University of Basra. 5. Alan V. Parker and David Pilbeam. 2012. The Guide to Plant Nutrition. Translated by Dr. Nour Al-Din Shawqi Al-Hashemi. College of Agriculture - University of Baghdad
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, USGS

Course Description Form

1. Course Name:					
Plant Taxonomy					
2. Course Code:					
PLTA216					
3. Semester / Year:					
First semester/ Second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Ashraf hashim ali Email: ashrafhacioglu@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge to identify plants, classify them, divide them, and know their goals.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Introduction to classification	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	The importance of dividing plants	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	The main goals of plant taxonomy	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Evolutionary characteristics of flowering plants	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Naqabat	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Identifying an unknown plant	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	How to collect plants	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Description of	knowledge	lecture	Daily and monthly exam, attendance and reports

		families of gymnosperms			
9	5	seed	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	fruits	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Papers	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	leg	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Root	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Floral systems	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Drying plants	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Plant taxonomy, botany
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Computer/3					
2. Course Code:					
COMA205					
3. Semester / Year:					
first semester/ second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) Hours, Number of units (1)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist Prof. Basira Abdullah Ahmed Email: baseraabdullah@uokirkuk.edu.iq					
8. Course Objectives					
Developing the student's abilities to master making tables and writing mathematical equations via the computer					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Run Microsoft Word - open a new document - save the working page - make a backup copy - close a file - open a stored file	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	3	Inverting the language between Latin and Arabic - preparing an Arabic and Latin paragraph - preview before printing - printing the worksheet - specifying the text - font and size - underlining - changing letter case	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	3	Moving and copying information - Word clipboard - Search and replace - Numbers and bullets - Spell checker - Undo - Reverse undo - Page setup - Page margins - Text alignment - Line spacing	Knowledge	lecture	Daily and monthly exam, attendance and reports
4	3	Inserting a table - Inserting rows and columns - Selecting the row/column - Selecting the table - Adding borders and deleting cells - Shading	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports

		the frame			
5	3	Merge and split cells - Split the table - Change the height and width of cells - Auto fit - Repeat the table title - Header and footer - Sorting text	knowledge	lecture	Daily and monthly exam, attendance and reports
6	3	Page numbering - writing code - toolbar - drawing - deleting drawing shapes - filling - drawing line color - inserting, editing, deleting and moving the image	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	3	Microsoft Excel: Run it - Excel worksheet - Enter data - Save the file - Print the worksheet - Exit the program	knowledge	lecture	Daily and monthly exam, attendance and reports
8	3	Practical exam	knowledge	lecture	Daily and monthly exam, attendance and reports
9	3	Selecting cells - types of data - using mathematical formulas to select data - relative and absolute addresses - formulas that produce error values - moving cells - copying data Move or copy a worksheet and replace - move to a cell - delete cells - erase/insert a row or column	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	3	Organizing the address list - Copying images and texts - Splitting web pages - Printing web pages - Search engines - How to search for information on the network - Using the search button in the toolbar -	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	3	Modify the height of a row or column - show and hide the row or column	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	3	Rename the worksheet - font type, size and style	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	3	Shape numbers - align data - add borders	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	3	Fill cells - sort data - create a chart	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	3	Edit Created Layout - Header/Footer Insert and remove a page break	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on
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	relevant books and references.
Main references (sources)	Computer basics and office applications (Part second) / Ziad Muhammad Aboudi, Ghassan Hamid Abdel Majeed, Mustafa Diaa Al-Hass
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:

English language 2 / elementary level

2. Course Code:

ENGL202

3. Semester / Year:

First semester/second year

4. Description Preparation Date:

31/03/2024

5. Available Attendance Forms:

Mandatory

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

(1) Hour, Number of units (1) unit

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

Name: Berevan Qader Omar **Email:** beree.omer@gmail.com

8. Course Objectives

Teaching this curriculum aims to make the student familiar with the English language as it is a global language from which the student will get benefit widely in his academic life.

This curriculum is an extension of what the student learned in the first stage.

9. Teaching and Learning Strategies

It is a semi-integrated curriculum for the elementary level that includes the basics necessary for learning the English language in a simplified way with exercises. It includes nouns, verbs, verb tenses, interrogatives, prepositions, and expression of quantities.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Verb to be (auxiliary verbs)	Knowledge	lecture	Exercise
2	1	Possessive adjectives	Knowledge	lecture	Exercise
3	1	Singular and plural	Knowledge	lecture	Exercise
4	1	Question words	Knowledge	lecture	Exercise
5	1	Tense of verbs	Knowledge	lecture	Exercise
6	1	Present simple for elementary level	Knowledge	lecture	Quiz
7	1	Present continuous for elementary level	Knowledge	lecture	Exercise
8	1	Adverb of frequency	Knowledge	lecture	Exercise
9	1	Expression of	Knowledge	lecture	Exercise

		quantity			
10	1	How many? Some & any	Knowledge	lecture	quiz
11	1	Past simple for elementary level	Knowledge	lecture	quiz
12	1	Comparative and superlative	Knowledge	lecture	Exercise
13	1	Past continuous for elementary level	Knowledge	lecture	Exercise
14	1	Preposition	Knowledge	lecture	Exercise
15	1	Irregular verbs	Knowledge	lecture	Quiz

11.Course Evaluation

Semester endeavor (40 marks): 15 marks for the first month exam + 5 marks for quiz
15 marks for second month exam + 5 marks for quiz
Final exam (60 marks)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway plus (elementary student book) / written by : Liz and John Soars / Oxford university press
Main references (sources)	Cambridge press
Recommended books and references (scientific journals, reports...)	My English library website
Electronic References, Websites	You tube and some useful websites

Course Description Form

1. Course Name:					
The crimes of the Baath regime in Iraq					
2. Course Code:					
BARC217					
3. Semester / Year:					
First semester/second year					
4. Description Preparation Date:					
31\3\2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 hours / 2 units					
7. Course administrator's name (mention all, if more than one name)					
Name: m. Shahad Jumaa Mohammad Email: shahadjumaa@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to the crimes committed by the Baath regime and the punishment. The decisions issued against the perpetrators of crimes, the types of international crimes and their impact on the citizen. . And mass graves.					
9. Teaching and Learning Strategies					
To make the learner able to know the types of international crimes and their impact on the people from a psychological, social and religious perspective and the punishments issued against the perpetrators of such crimes, as well as to know the oppression, abuse, murder and intimidation committed by the previous regime against Iraqi society.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learn about the concept of crimes and their categories	Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law in 2005	Lecture and discussion	Oral examination And essay
2	2	Identify the types of international crimes	Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law in 2005	=	=
3	2	Learn about the decisions issued by the Supreme Criminal Court	Crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law in 2005	=	=
4	2	Identify the mechanisms of psychological crimes.	Psychological and social crimes and their effects	=	=
5	2	Identify the effects of psychological crimes	Psychological and social crimes and their effects	=	=
6	2	Identify social crimes	Psychological and social crimes and their effects	=	=
7	2	Identify violations of Iraqi laws. And learning about	Psychological and social crimes and their effects		

		the places of prisons and detention of the Baath regime.			
8	2	exam			
9	2	Identifying military and radioactive contamination and mine explosions	Environmental crimes of the Baath regime in Iraq	=	=
10	2	Recognizing the destruction of cities and villages (scorched earth policy)	Environmental crimes of the Baath regime in Iraq	=	=
11	2	Learn about draining marshes and razing palm groves, trees and crops	Environmental crimes of the Baath regime in Iraq	=	=
12	2	exam			
13		Identifying mass Graves	Mass grave crimes	=	=
14		Identification of genocide graves related to the Iran-Iraq War of 1980-1988 AD	Mass grave crimes	=	=
15		Identifying the genocidal graves of the victims of the 1991 Shaabaniya uprising	Mass grave crimes	=	=

11. Course Evaluation

The semester endeavor is (40%) distributed (10) grades for daily preparation and participation, (30) monthly exams, with two monthly exams for each exam (15) grades, and the final exam grade is (60%).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The crimes of the Baath regime in Iraq
Main references (sources)	International responsibility for committing the crime of genocide - The geography of the marshes and swamps in southern Iraq – Environmental crimes of the Baath regime in Iraq - Mass graves , a people under the soil
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Farms Management					
2. Course Code:					
FAMA221					
3. Semester / Year:					
Second semester/second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. khattab Abdullah Mohammed Email: khattab1981@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge about the management of agricultural projects and how to conduct calculations related to production costs, their types, revenues generated from them, and calculate extinction premiums for the place, machinery, buildings, and fences.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	knowledge	Introduction to farm management	lecture	Daily and monthly exam, attendance and reports
2	5	knowledge	Definition of farm management	lecture	Daily and monthly exam, attendance and reports
3	5	knowledge	The difference between farm management and pure science	lecture	Daily and monthly exam, attendance and reports
4	5	Knowledge, skills and attitudes	Successful management qualifications	lecture	Daily and monthly exam, attendance and reports
5	5	knowledge	Management jobs	lecture	Daily and monthly exam, attendance and reports

6	5	Knowledge, skill and attitude	Management and Organization	lecture	Daily and monthly exam, attendance and reports
7	5	knowledge	Types of farm decisions and their most important	lecture	Daily and monthly exam, attendance and reports
8	5	knowledge	Factors determining project selection	lecture	Daily and monthly exam, attendance and reports
9	5	Knowledge, skill	Production costs and their types	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge, skill	The best level of production	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge, skill	Comparative costs theory	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge, skill	Substitution and substitution	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge, skill	Equal marginal returns	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge, skill	Opportunity costs	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge, skill	Extinction and methods for calculating it	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Agricultural business management, written by Dr. Hashem Alwan Al-Samarrai
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Land Cultivation					
2. Course Code:					
SUOC222					
3. Semester / Year:					
Second semester/ Second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Ashraf hashim ali Email: ashrafhacioglu@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge to identify oil and sugar crops, know the botanical description, and how to manufacture vegetable oils.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	A general introduction to industrial crops	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Definition of oil crops	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Vegetable oil industry	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Sunflower	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Botanical description of sunflower	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	soybean	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Botanical description of soybeans	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Rape + sesame	knowledge	lecture	Daily and monthly exam, attendance and reports

9	5	Botanical description of rape + sesame	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Linen	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Botanical description of flax	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Sugar beets	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Botanical description of sugar beets	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Sugarcane	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Botanical description of sugarcane	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Dr. Tawakkol Younis and Dr. Abdel Hamid, Sugar Crops 1983 Dr. Nasser Hussein Safar, cultivation of sugar crops 1993
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Principles of Statistics					
2. Course Code:					
STPR223					
3. Semester / Year:					
First semester/second year					
4. Description Preparation Date:					
31/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Theory=(2) Hours & Practical = (3) Hours , Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Salah Jasim Amin Email: dr.salahjasim@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce students to the principles of statistics and its types, how to display tables and graphical representation of data, as well as to identify the most important statistical methods used (measures of central tendency and dispersion, etc.) and to make the student able to use different statistical methods correctly to solve statistical problems, as well as to analyze data statistically					
9. Teaching and Learning Strategies					
Explanation and clarification lecture method student groups.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	knowledge	Introduction to statistics, its definition, and its divisions	lecture	Exam
2	5	knowledge	The nature of statistical data and symbols	lecture	Exam
3	5	Knowledge & skills	Tabular display and graphical representation	lecture	Exam
4	5	Knowledge & skills	Tabular display and graphical representation	lecture	Exam

5	5	Knowledge & skills	measures of central tendency (arithmetic mean and harmonic mean) for ungrouped data and classified data	lecture	Exam
6	5	Knowledge & skills	measures of central tendency (median, mode) for ungrouped data and classified data	lecture	Exam
7	5	Knowledge & skills	measures of central tendency (geometric mean, square mean) for ungrouped data and classified data	lecture	Exam
8	5	Knowledge & skills	Measures of absolute dispersion (range, mean deviation)	lecture	Exam
9	5	Knowledge & skills	Measures of absolute dispersion (variance, standard deviation)	lecture	Exam
10	5	Knowledge & skills	Measures of relative dispersion: (coefficient of variation)	lecture	Exam
11	5	Knowledge & skills	Torsion measures and oblate measures	lecture	Exam
12	5	Knowledge & skills	Hypothesis testing	lecture	Exam
13	5	Knowledge & skills	t distribution	lecture	Exam
14	5	Knowledge & skills	Chi-square distribution	lecture	Exam
15	5	Knowledge & skills	Simple regression and correlation	lecture	Exam

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Statistics, written by Dr. Khasha Mahmoud Al-Rawi (1989)
Main references (sources)	Introduction to descriptive statistics, written by Prof. Dr. Muhammad Ahmed Shalabi
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals
Electronic References, Websites	Different sites on the Internet

Course Description Form

1. Course Name:					
Plant ecology					
2. Course Code:					
PLEC224					
3. Semester / Year:					
Second semester/second year					
4. Description Preparation Date:					
31/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Lecturer Dr. Hassan Habib Hassan Email: hassan.habib@uokirkuk.edu.iq					
8. Course Objectives					
Introduce a student to a brief history of plant ecology, its stages of development, and the extent of its impact on the life cycle of plants by affecting the surrounding environment.					
9. Teaching and Learning Strategies					
How to plan in the cultivation of the field according to environmental data. The student understood the extent to which environmental conditions affect the plant.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Ecology Science, Departments and branches of ecology, Divisions of modern ecology	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Ocean physicist, ocean biology , Environmental factors and their relation to crop	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Ecosystem and its relationship to the knowledge of the human environment and ecosystem includes types of ecosystem, which includes the full and complete ecosystem is.	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Progressions and has provided environmental - the basic types of succession - basic progressions in plants and includes (water succession and succession of drought and the exact forms of succession)	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Climate and weather, Regions of the world is divided by the prevailing climate in which	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Factors affecting the intensity of illumination ,The division of plants according to their response to light yearned	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Plant efficiency in the use of	knowledge	lecture	Daily and monthly exam,

		light ,The effect of light in the plant			attendance and reports
8	5	Temperature , Sources of temperature , The division of crops according to thermal	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Efficient temperature ,The length of the growing season , Heat accumulated , Effect of temperature on plant	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Temperature damage to crops , Water, Division of the year by the amount of rain fall	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Water needs of crop	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Efficiency of water consumption , Factor Almueallague the plant , The division of plant according to water needs	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Winds and their effects on the plant ,Damage and benefits caused by wind	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Moisture ,Air humidity ,Effect of humidity in the growth of crops ,Factors that affect the atmospheric humidity	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Environmental pollution ,Introduction ,Definition of pollution, The nature of materials contaminated ,Pollution of natural, Air pollution , Major sources of pollution , Methods of treatment and the reduction pollution, Water pollution , Treatment to reduce water pollution , contamination of soils , Sources of contamination of soils	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Plant Environment, Dr. Qais Ajel Shanawa, 2010
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:

Principle of microbiology

2. Course Code:

MIPR225

3. Semester / Year:

/first and Second semester/second year

4. Description Preparation Date:

03/04/2024

5. Available Attendance Forms:

Mandatory

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

(5) Hours, Number of units (3)

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

Name: Dr. kawther hkeem ibraheim **Email:** microbiology_1975@uokirkuk.edu.iq

8. Course Objectives

The course aims to raise the level of students' knowledge about the microbiology projects and how to distinguish between them practically and culturing with acknowledging how characterization laboratory.

9. Teaching and Learning Strategies

Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	<ul style="list-style-type: none"> - Introduction to microbiology - Know general aspect of microbiology Know the important scientists contributed in development of microbiology	Introduction and the historical development of microbiology	lecture	Daily and monthly exam, attendance and reports- Making quizzes - Discussion
2	5	<ul style="list-style-type: none"> - How to classifying bacteria - Know the general structure of bacteria Know the physiology of bacteria	The classification of microorganisms Nutritional requirements of bacteria	lecture	Daily and monthly exam, attendance and reports
3	5	Microbial control Sterilization and Disinfection	<ul style="list-style-type: none"> - Know the different types of microbial control 	lecture	Daily and monthly exam, attendance and

			How to use the sterilization techniques for medical equipments		reports
4	5	Structure of bacteria components	knowledge	Lecture working in lab as group	Daily and monthly exam, attendance and reports
5	5	Classification of bacteria	Classification of bacteria depending on family, class, order, genus	Lecture working in lab as group	Daily and monthly exam, attendance and reports
6	5	History, Classification of fung	Intensive study fungi. structure, nutrition, physiology	Lecture working in lab as group	Daily and monthly exam, attendance and reports
7	5	History, Classification of yeast	Intensive study fungi. structure, nutrition, physiology	Lecture working in lab as group	Daily and monthly exam, attendance and reports
8	5	History, Classification of algae	Intensive study fungi. structure, nutrition, physiology	Lecture working in lab as group	Daily and monthly exam, attendance and reports
9	5	History, Classification of protozoa	Intensive study fungi. structure, nutrition, physiology, classification, Knowledge, skill	Lecture working in lab as group	Daily and monthly exam, attendance and reports
10	5	History, Classification of virus	Intensive study fungi. structure, nutrition, physiology, classification, Knowledge, skill	Lecture working in lab as group	Daily and monthly exam, attendance and reports
11	5	Control of microorganism	Factors on microorganism growth, control, prevention	Lecture working in lab as group	Daily and monthly exam, attendance and reports
12	5	antibiotic	Study types of antibiotics, classification, act work with site effects on it	Lecture working in lab as group	Daily and monthly exam, attendance and reports
13	5	pathogenesis	Doses of effect and type of toxins for each bacteria and works	Lecture working in lab as group	Daily and monthly exam, attendance and reports
14	5	Microorganism in food	Study types of microorganisms with acts in food and benefits and disadvantages	Lecture working in lab as group	Daily and monthly exam, attendance and reports
15	5	Micro in water, air, industrial	Types and classification for each one and works and distribution in	Lecture working in lab as group	Daily and monthly exam, attendance and

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
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Main references (sources)	<p>Whitman, William B; Rainey, Fred; Kämpfer, Peter; Trujillo, Martha; Chun, Jonsik; Devos, Paul; Hedlund, Brian; Dedysh, Svetlana (eds.) (2015). <i>Bergey's Manual of Systematics of Archaea and Bacteria</i>. John Wiley and Sons.</p> <p>Richard A. Harvey, Cynthia Nau Cornelissen and Bruce D. Fisher. <i>Microbiology. (Lippincott's Illustrated Reviews) 3rd edition. 2014</i></p> <p>Bailey and Scott's.(2014). <i>Diagnostic microbiology</i>.Elseiver,2014.</p> <p>6-- Brock TD.Madigan M. Martinko J. et al.editors: <i>Biology of microbiology</i>. Upper Saddle River, NJ.2009. Prentice Hall</p>
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Recommended books and references (scientific journals, reports...)	Web sites of Microbiology
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Course Description Form

1. Course Name:					
Irrigation and Drainage					
2. Course Code:					
IRDR226					
3. Semester / Year:					
Second semester/second year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assistant Professor Wael Fahmi Abdulrahman					
Email: waelfahmi@uokirkuk.edu.iq					
8. Course Objectives					
1- Studying different irrigation methods and systems 2- Studying the optimal use and raising the efficiency of water use Studying punctures and their justifications and identifying the types of puncturing networks and methods of designing them, calculating the distance between them and maintaining them.					
9. Teaching and Learning Strategies					
1- Enable the student to learn how to evaluate and characterize modern irrigation methods 2- Enabling the student to know how to use irrigation and drainage networks for soil, and to obtain the best methods and exploit them for agriculture 3- Enabling the student to know how to conduct the modern irrigation method and link it with the puncture system to achieve integration between the irrigation and puncture process 4- Using modern methods and training students on them 5- Enabling students to use modern software and model irrigation movement 6- Linking irrigation issues with the drainage system to achieve integration					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٣+٢	Show topic data word and Data Show	Irrigation concept, irrigation water sources, irrigation water quality.	Calculator + Lectures	Daily questions + tests
٢	٣+٢	Show topic data word and Data Show	Soil physical properties associated with irrigation.	Calculator + Lectures	Daily questions + tests
٣	٣+٢	Show topic data word and Data Show	The relationship of water with soil, soil moisture constants, movement of water	Calculator + Lectures	Daily questions + tests

			in the soil, water changes		
٤	٣+٢	Show topic data word and Data Show	Irrigation water measurements.	Calculator + Lectures	Daily questions + tests
٥	٣+٢	Show topic data word and Data Show	Plant water consumption.	Calculator + Lectures	Daily questions + tests
٦	Semester exam	Show topic data word and Data Show	Water needs and irrigation scheduling.	Calculator + Lectures	Daily questions + tests
٧	٣+٢	Show topic data word and Data Show	Transport and distribution of irrigation water, movement of water in pipes and open channels.	Calculator + Lectures	Daily questions + tests
٨	٣+٢	Show topic data word and Data Show	First month exam.	Calculator + Lectures	Daily questions + tests
٩	٣+٢	Show topic data word and Data Show	Adequacy, efficiency and consistency of irrigation and traditional irrigation methods.	Calculator + Lectures	Daily questions + tests
١٠	٣+٢	Show topic data word and Data Show	Modern irrigation methods	Calculator + Lectures	Daily questions + tests
١١	٣+٢	Show topic data word and Data Show	Puncture concept. Sources of excess water. The relationship of puncture to plant growth and productivity.	Calculator + Lectures	Daily questions + tests
١٢	٣+٢	Show topic data word and Data Show	Puncture and soil salinity, washing requirements and salt balance.	Calculator + Lectures	Daily questions + tests
١٣	Semester exam	Show topic data word and Data Show	Types of trocars: open trocars. Covered trocars.	Calculator + Lectures	Daily questions + tests
١٤	٣+٢	Show topic data word and Data Show	Distance between field trocars. Trocar maintenance.	Calculator + Lectures	Daily questions + tests
١٥	٣+٢	Show topic data word and Data Show	Second month exam	Calculator + Lectures	Daily questions + tests

11. Course Evaluation

Daily and monthly tests through questions presented to them on the subject studied
Degrees are awarded for student participation in scientific research and reports
Student activities by creating posters and illustrations related to the academic subject

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Irrigation, its basics and applications. Written by Dr. Nabi Ibrahim Al-Tayef and Issam Khudair Al-Hadithi. 1990. 2- Irrigation and drainage. Written by Dr. Laith Khalil Ismail. 2000.
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, USGS

Course Description Form

1. Course Name:					
Computer/4					
2. Course Code:					
COMA206					
3. Semester / Year:					
second semester/ second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) Hours, Number of units (1)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist Prof. Basira Abdullah Ahmed Email: baseraabdullah@uokirkuk.edu.iq					
8. Course Objectives					
Introducing the student to the components of the computer, explaining the units of information input and graduation, and providing and developing the student's abilities by using the main applications in the computer					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Microsoft Power Point presentation program - Run Power Point - Presentation window - Create a presentation - Create a title slide - Control the location and size of the text boxes - Font type - Save the presentation - Close a file - Open a stock presentation	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	3	Add a new slide - move between slides - delete a slide - repeat a slide - set up pages - design templates - control slide background - number slides - insert an image - create a bulleted slide - create an image and text slide - create a two-column text slide	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	3	Tables - Create a layout and text slide - Create your organizational chart slide - Layout (chart) - Create an image and text	Knowledge	lecture	Daily and monthly exam, attendance and

		slide - Create a blank slide - Change the slide type			reports
4	3	Slide show methods - rearranging slides - animation effects - adding slides from another presentation - adding audio or video clips - slide transitions	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	3	Practice timing - slide show - in the slide show window - commentator's notes - handouts - line spacing - print the presentation	knowledge	lecture	Daily and monthly exam, attendance and reports
6	3	file, lecture and exam	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	3	Introduction to the Internet - What is the Internet - Its definition, origin and development - How to connect to the Internet - Internet addresses and URL concepts - Internet-specific terminology	knowledge	lecture	Daily and monthly exam, attendance and reports
8	3	age, lecture, exam Explanation of the inclusion bar, lecture and exam	knowledge	lecture	Daily and monthly exam, attendance and reports
9	3	Browsing and search service - opening the browser - browsing window - hyper links - web addresses - changing the start page - canceling the display of images and pages - closing the browser and disconnecting browsing, storing favorite pages	knowledge	lecture	Daily and monthly exam, attendance and reports
10	3	Organizing the address list - Copying images and texts - Splitting web pages - Printing web pages - Search engines - How to search for information on the network - Using the search button in the toolbar -	knowledge	lecture	Daily and monthly exam, attendance and reports
11	3	E-mail services - sending a message - sending attachments with the message - storing the message in the drafts folder - reading a message - reading a message containing an attachment - replying to the message - passing a message to another user	knowledge	lecture	Daily and monthly exam, attendance and reports
12	3	Cancel a message - print a message - create a folder - move a message from one folder to another - store electronic addresses in the address book - use addresses stored in the address book - add a digital signature - exit the program	knowledge	lecture	Daily and monthly exam, attendance and reports
13	3	Microsoft Access - What is a database -	knowledge	lecture	Daily and

		Definition of Microsoft Access - Terms specific to databases - Running the Microsoft program			monthly exam, attendance and reports
14	3	Primary key - save the log - close the database - display the data in the table - move between the design view window and the data page view window - enter data into the table - change the orientation of the data page view window	knowledge	lecture	Daily and monthly exam, attendance and reports
15	3	Practical exam, lecture exam	knowledge	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Computer basics and office applications (Part forth) / Ziad Muhammad Aboudi, Ghassan Hamid Abdel Majeed, Mustafa Diaa Al-Hass
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:					
Genetics					
2. Course Code:					
GENE311					
3. Semester / Year:					
First Semester/Third year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Dr. Hussein Abdullah Ahmed Email: husseinabdullah@uokirkuk.edu.iq					
8. Course Objectives					
The aim of the article is to acquaint the student with the principles of genetics and the laws that regulate this science, introduce the student to the basic principles and ways of applying Mendelian laws of heredity in life, elevate the student's understanding of ways to improve breeding in plants, mechanisms of genetic information transfer among microorganisms, familiarize the student with the extent of inheritance and transmission of traits from one generation to another, and ways to improve generations.					
9. Teaching and Learning Strategies					
The student or learner should be able to improve cognitive objectives by introducing them to the types of genetic material at the beginning and the nucleus's reality, the mechanism of genetic material transmission from one generation to another, examining cells under the microscope, the skills objectives specific to the program, introducing the student to how traits are passed from one generation to another, the student's ability to interpret genetic outcomes, as well as applications of genetics.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and skills	Introduction to Genetics Dominant and Recessive Alleles Monohybrid Cross and Mendel's First Law Dihybrid Cross and Mendel's Second Law	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
2	5	Knowledge and skills	Genetics Fundamentals	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
3	5	Knowledge and skills	The chemical basis of heredity	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
4	5	Knowledge and skills	Levels of DNA organization in chromosomes	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Genes	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports

6	5	Knowledge and skills	Genetic mutations	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Deoxyribonucleic acid replication	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	RNA cloning	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Protein biosynthesis	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Polymerase chain reaction techniques	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Cellular division	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	Linkage, crossing over, and chromosomal mapping	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
13	5	Knowledge and skills	Cytoplasmic genetics	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
14	5	Knowledge and skills	Quantitative genetics and heritability coefficient, population genetics	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	Genetic Engineering	Explanation, presentation of the model, and the lecture.	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester endeavor is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (10) grade for the practical semester exams, and (20) for the theoretical semester exams, and the final exam grade is from (60%), and the final practical exam is (20) The final theoretical exam is (40) marks

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	The lecturer prepares lectures based on relevant books and references.
Main references (sources)	Introduction to Genetics / Assistant Professor Dr. Abbas Hussein Maghir Al-Rubaie / 2016 Theoretical Part Plant Genetics / Dr. Ghassan Ayyash, Dr. Mohammed Sleiman, and Mrs. Farah Aloush / 2016 Practical Part
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Computer/4					
2. Course Code:					
COMA206					
3. Semester / Year:					
second semester/ second year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(3) Hours, Number of units (1)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist Prof. Basira Abdullah Ahmed Email: baseraabdullah@uokirkuk.edu.iq					
8. Course Objectives					
Introducing the student to the components of the computer, explaining the units of information input and graduation, and providing and developing the student's abilities by using the main applications in the computer					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Microsoft Power Point presentation program - Run Power Point - Presentation window - Create a presentation - Create a title slide - Control the location and size of the text boxes - Font type - Save the presentation - Close a file - Open a stock presentation	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	3	Add a new slide - move between slides - delete a slide - repeat a slide - set up pages - design templates - control slide background - number slides - insert an image - create a bulleted slide - create an image and text slide - create a two-column text slide	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	3	Tables - Create a layout and text slide - Create your organizational chart slide - Layout (chart) - Create an image and text	Knowledge	lecture	Daily and monthly exam, attendance and

		slide - Create a blank slide - Change the slide type			reports
4	3	Slide show methods - rearranging slides - animation effects - adding slides from another presentation - adding audio or video clips - slide transitions	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	3	Practice timing - slide show - in the slide show window - commentator's notes - handouts - line spacing - print the presentation	knowledge	lecture	Daily and monthly exam, attendance and reports
6	3	file, lecture and exam	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	3	Introduction to the Internet - What is the Internet - Its definition, origin and development - How to connect to the Internet - Internet addresses and URL concepts - Internet-specific terminology	knowledge	lecture	Daily and monthly exam, attendance and reports
8	3	age, lecture, exam Explanation of the inclusion bar, lecture and exam	knowledge	lecture	Daily and monthly exam, attendance and reports
9	3	Browsing and search service - opening the browser - browsing window - hyper links - web addresses - changing the start page - canceling the display of images and pages - closing the browser and disconnecting browsing, storing favorite pages	knowledge	lecture	Daily and monthly exam, attendance and reports
10	3	Organizing the address list - Copying images and texts - Splitting web pages - Printing web pages - Search engines - How to search for information on the network - Using the search button in the toolbar -	knowledge	lecture	Daily and monthly exam, attendance and reports
11	3	E-mail services - sending a message - sending attachments with the message - storing the message in the drafts folder - reading a message - reading a message containing an attachment - replying to the message - passing a message to another user	knowledge	lecture	Daily and monthly exam, attendance and reports
12	3	Cancel a message - print a message - create a folder - move a message from one folder to another - store electronic addresses in the address book - use addresses stored in the address book - add a digital signature - exit the program	knowledge	lecture	Daily and monthly exam, attendance and reports
13	3	Microsoft Access - What is a database -	knowledge	lecture	Daily and

		Definition of Microsoft Access - Terms specific to databases - Running the Microsoft program			monthly exam, attendance and reports
14	3	Primary key - save the log - close the database - display the data in the table - move between the design view window and the data page view window - enter data into the table - change the orientation of the data page view window	knowledge	lecture	Daily and monthly exam, attendance and reports
15	3	Practical exam, lecture exam	knowledge	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Computer basics and office applications (Part forth) / Ziad Muhammad Aboudi, Ghassan Hamid Abdel Majeed, Mustafa Diaa Al-Hass
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:					
Cereal crops					
2. Course Code:					
CECR313					
3. Semester / Year:					
First semester/third year					
4. Description Preparation Date:					
31/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Lecturer Dr. Hassan Habib Hassan Email: hassan.habib@uokirkuk.edu.iq					
8. Course Objectives					
Introducing a student to a brief history of cereal crop science, its stages of development, and the extent to which the yield of these crops is affected by the impact on the surrounding environment.					
9. Teaching and Learning Strategies					
The course aims to identify the aspects or factors focused on grain crop science and environmental factors, represented by soil and climate elements in the production of these crops in Iraq.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Economic importance, world production centers	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Wheat, economical importance, production centers, countries of origins	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Wheat growth stages, classes, nutritional value, varieties planted in Iraq regions.	Knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Irrigation practices, lodging, maturity, harvesting, drying, storages, wheat Breeding and improvements, seeds milling and flower	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Barley, economic importance, production centers, counters of origin	Knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Barley classes, varieties, distribution in Iraq,	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Maturity, harvesting, drying, storage, productivity, planting methods	Knowledge	lecture	Daily and monthly exam, attendance and reports

8	5	Rice economic importance, production centers, countries of origin	Knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Rice plant growth stages, world and Iraq rice classes, nutritional value, varieties ,description in Iraq	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Rice maturity, harvesting, drying, productivity, seed grading, rice milling, and food quality tests	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Maze, history, origin, economic importance ,chemical seed components, distribution, maturity, harvest, plant breeding	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Sorghum, Economic importance, origin, classes, distribution in Iraq, maturity	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Millets, economic importance, production centers, origin, varieties, maturity, harvesting, productivity, quality.	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Oat, economic importance, production centers, origins, classes, maturity, harvesting, productivity, qualities	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Ray, economic importance, production centers, origin, varieties, maturity, harvesting, productivity, quality.	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Cereal and pulses crops, by Nabil Ali Khalil et al., 2015
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:

Field crop insects

2. Course Code:

FICI314

3. Semester / Year:

First semester/third year

4. Description Preparation Date:

3/04/2024

5. Available Attendance Forms:

Mandatory

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

(5) Hours, Number of units (3)

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

Name: Prof. Dr.kareem A.H. Al Bayati / **Email:** m_citruspalm@uokirkuk.edu.iq

8. Course Objectives

Introducing students to the economic importance of field crops and the agricultural sector - the economic importance of insects that infect crops, the biological kingdoms - their division and their role in causing damage - the losses caused by them in the field - the animal kingdom - their division and knowing the insects' belonging to the arthropod phylum - the damage caused by insects to crops - Stored materials - division of insects according to plant families - according to nutrition - according to ecologists - insect nutrition - reproduction - types of larvae - types of pupae - control methods

9. Teaching and Learning Strategies

There are cognitive objectives for students to learn about the economic importance of field crops and their targeting by insects - for students to learn about the damage caused by insects to plants and stored materials - for students to learn about methods of control, their division, and control mechanisms - for students to learn to divide insects according to Horticultural plant families.

There are skills objectives - introducing students to the concept of entomology - its connection to the animal kingdom and the arthropod phylum - identifying the sources of insects, their environment, and the reasons for their widespread spread across the globe - introducing students to the environment and how to preserve it using friendly control methods.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	The economic importance of field crops	Insect basics	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
2	5	Agricultural pests - their division	Basics of pests and insects	Lecture Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
3	5	Biological Kingdoms - Animal Kingdom website	Animal Kingdom - Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports reports
4	5	Insect damage to crops - damage to stored materials	Animal Kingdom - Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
5	5	Beneficial insects - the causes of the spread of	Animal Beneficial	Explanation, presentation of the	Examination - attendance -

		insects on Earth	entomology	model and lecture	preparing reports
6	5	Control methods and methods - pesticides	Entomology and pesticides	Lecture Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
7	5	Internal and external insect anatomy	Animal Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
8	5	Insects are polyphagous, oligophagous, and monofamilial	Animal Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
9	5	Multi-family insects - locusts - carobs - locusts	Animal Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
10	5	Insects of complex families - saprophytes	Animal Economic Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
11	5	Supplement to the insects of the Poaceae family - wheat - barley - wheat leaf miner - wheat saw wasp - ear chewer -	Animal Economic Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
12	5	Insects of complex families - saprophytes	Animal Economic Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
13	5	Insect management - control methods - integrated pest control	Animal Economic Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
14	5	Cotton insects - beans - peas - chickpeas	Animal Economic Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports
15	5	How to collect insects and harden them	Animal Economic Entomology	Explanation, presentation of the model and lecture	Examination - attendance - preparing reports

Course Evaluation

The course evaluation constants can be based on a semester grade of (40%) distributed over (10) grades for daily preparation, participation, attendance, and submitting reports, and (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the final exam grade is from (60%)

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Crop insects - Abdullah Al-Azzawi - applied guide in controlling agricultural pests. Al-Yazouri Scientific House. Riyadh Al-Iraqi - Nadeem 2012 - Amr Jaber Yemen - 2019 Integrated management of grape pests and diseases in the Republic of Yemen. Economic insects in Iraq. University of Al Mosul. Awad Hanna and Adel Amin - 1980 - Pests of crops, fruit orchards, vegetables and trees - 2024 - Al-Bayati and others
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:					
Forage Crops					
2. Course Code:					
FOCR316					
3. Semester / Year:					
First semester/ Third year					
4. Description Preparation Date:					
1/4/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 Hours (2 hours theory + 3 hours practical per week) / Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist. Prof. Dr. Ali Hussein Raheem Email: ahraldawodi@uokirkuk.edu.iq					
8. Course Objectives					
<ul style="list-style-type: none"> - Learn about the forage crops species and varieties. - Learn about the most appropriate environmental conditions for forage crops cultivation - Learn about forage crops management - Learn about timely of cutting for different forage crops - Learn about how forages manufacture and save (Hay - Silage) 					
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> - Lecture - Discussion - View simultaneous pictures of forage plants - View videos about forage plants - View different parts of forage plants 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Cognitive	The economic importance of forage crops and some important terms in the field of forage crops.	Lecture Discussion	Daily and monthly exam, attendance and reports
2	5	Cognitive and skill	The agricultural importance of forage crops , distinguish and viewing forage crops seeds.	Lecture Discussion	Daily and monthly exam, attendance and reports
3	5	Cognitive and skill	Leguminous forage crops / Lucerne or Alfalfa/ Importance, origin, convenient environment, botanical description.	Lecture Discussion View pictures View video View plant	Daily and monthly exam, attendance and reports
4	5	Cognitive and skill	Lucerne / Utilization , nutritional value , seed production , soil and crop	Lecture Discussion View pictures	Daily and monthly exam, attendance and reports

			management.	View video View plant	
5	5	Cognitive and skill	Medics / Importance, origin, convenient environment, varieties ,botanical description.	Lecture Discussion View pictures View plant	Daily and monthly exam, attendance and reports
6	5	Cognitive and skill	Egyptian clover / Importance, origin, convenient environment, nutritional value, soil and crop management botanical description.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
7	5	Cognitive and skill	Sweet clover - Bird foot trefoil / Importance, origin, convenient environment, nutritional value, soil and crop management botanical description	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
8	5	Cognitive and skill	Vetch - Cowpea - Mung bean - Soybean / Importance, origin, convenient environment, nutritional value, soil and crop management botanical description	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
9	5	Cognitive and skill	Grain forage crops / Barley - Oat / Importance, origin, convenient environment, nutritional value, soil and crop management botanical description	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
10	5	Cognitive and skill	Corn / Importance, origin, convenient environment, nutritional value, soil and crop management botanical description	Lecture Discussion View pictures View video View plant	Daily and monthly exam, attendance and reports
11	5	Cognitive and skill	Sorghum - Sudan grass - Millets / Importance, origin, convenient environment, nutritional value, soil and crop management botanical description	Lecture Discussion View pictures View video View plant	Daily and monthly exam, attendance and reports
12	5	Cognitive	Forage seed mixtures / Importance , types of mixtures , advantages and benefits	Lecture Discussion	Daily and monthly exam, attendance and reports
13	5	Cognitive and skill	Forage quality and evaluation.	Lecture Discussion	Daily and monthly exam, attendance and reports
14	5	Cognitive	Factors affecting the forage quality	Lecture Discussion	Daily and monthly exam, attendance and reports
15	5	Cognitive	Forages manufacture and save (Hay - Silage)	Lecture Discussion	Daily and monthly exam, attendance

				View pictures View video	and reports
11.Course Evaluation					
The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).					
12.Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Forage crops		
Main references (sources)			Forage and pasture crops		
Recommended books and references (scientific journals, reports...)			Iraqi academic scientific and International journals		
Electronic References, Websites			http://agri-science-refrence.blogspot.com		

Course Description Form

1. Course Name:

English language 3/ pre- intermediate level

2. Course Code:

ENGL303

3. Semester / Year:

First semester/ third year

4. Description Preparation Date:

31/03/2024

5. Available Attendance Forms:

Mandatory

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

(1) Hour, Number of units (1) unit

7. Course administrator's name (mention all, if more than one name)**Name:** Berevan Qader Omar **Email:** beree.omer@gmail.com**8. Course Objectives**

Teaching this curriculum aims to make the student familiar with the English language as it is a global language from which the student will benefit widely in his academic life. This curriculum is an extension of what the student learned in the first and second stages.

9. Teaching and Learning Strategies

It is a semi-integrated curriculum for the pre-intermediate level, which includes the necessary basics for learning the English language for the pre-intermediate level, along with exercises. It includes interrogative articles and four types of verb tenses, with an explanation of each tense in the form of the affirmative, negative, and question. It also includes how to Expressing quantities, articles, and indefinite in the English language, comparative and superlative adjectives, and identifying verb forms in the English language.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Question words	Knowledge	lecture	Exercise
2	1	Present simple for pre- intermediate level	Knowledge	lecture	Exercise
3	1	Present continuous for pre- intermediate level	Knowledge	lecture	Exercise

4	1	Past simple for pre-intermediate level	Knowledge	lecture	Exercise
5	1	Past continuous for pre- intermediate level	Knowledge	lecture	Exercise
6	1	Expression of quantity	Knowledge	lecture	Quiz
7	1	Articles	Knowledge	lecture	Exercise
8	1	Comparative and superlative	Knowledge	lecture	Exercise
9	1	Have to	Knowledge	lecture	Exercise
10	1	Introduction to modal auxiliary verbs	Knowledge	lecture	quiz
11	1	Should	Knowledge	lecture	quiz
12	1	Must	Knowledge	lecture	Exercise
13	1	Verb pattern 1	Knowledge	lecture	Exercise
14	1	Verb pattern 2	Knowledge	lecture	Exercise
15	1	Irregular verbs	Knowledge	lecture	Quiz

11.Course Evaluation

Semester endeavor (40 marks): 15 marks for the first month exam + 5 marks for quiz
15 marks for second month exam + 5 marks for quiz
Final exam (60 marks)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway plus (elementary student book) / written by : John and Liz Soars / Oxford university press
Main references (sources)	Cambridge press
Recommended books and references (scientific journals, reports...)	My English library website
Electronic References, Websites	You tube and some useful websites

Course Description Form

1. Course Name:					
Fiber Crops					
2. Course Code:					
FICR321					
3. Semester / Year:					
second semester/ Third year					
4. Description Preparation Date:					
1/4/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
75 Hours (2 hours theory + 3 hours practical per week) / Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist. Prof. Dr. Ali Hussein Raheem Email: ahraldawodi@uokirkuk.edu.iq					
8. Course Objectives					
<ul style="list-style-type: none"> - Learn about the fiber crops species and varieties in the Iraq and world . - Learn about the most appropriate environmental conditions for fiber crops cultivation. - Learn about fiber crops management. - Learn about how to prepare fiber for different fiber crops. - Learn about the grade and quality of the fibers and the factors affecting them. 					
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> - Lecture - Discussion - View simultaneous pictures of fiber plants - View videos about fiber plants - View different parts of fiber plants 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Cognitive	An introduction to fiber crops, economic importance and global production.	Lecture Discussion	Daily and monthly exam, attendance and reports
2	5	Cognitive	Obstacles to sowing fiber crops and the means to overcome them.	Lecture Discussion	Daily and monthly exam, attendance and reports
3	5	Cognitive and skill	Fiber division - Distinguishing fiber crops seeds and making laboratory germination.	Lecture Discussion	Daily and monthly exam, attendance and reports
4	5	Cognitive	Physical and chemical properties of fibers - An idea of the devices used in the field of fiber.	Lecture Discussion	Daily and monthly exam, attendance and reports

5	5	Cognitive and skill	Cotton / Origin, economic importance, convenient environment, species ,botanical description.	Lecture Discussion View pictures View Cotton plant	Daily and monthly exam, attendance and reports
6	5	Cognitive and skill	Cotton species and varieties - preparing the land to grow cotton in the field.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
7	5	Cognitive and skill	Cotton harvest , determine cotton grade , cotton defoliation . grow cotton in the field.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
8	5	Cognitive and skill	The emergence of cotton hair , cotton ginning , crop management.	Lecture Discussion View pictures	Daily and monthly exam, attendance and reports
9	5	Cognitive and skill	Flax / Origin, economic importance, species , convenient environment, botanical description.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
10	5	Cognitive and skill	Indian and Manchurian jute / Origin, economic importance, species , convenient environment, botanical description.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
11	5	Cognitive and skill	Methods for extracting jute fiber - soil and crop management.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
12	5	Cognitive and skill	Kenaf / Origin, economic importance, species , convenient environment, botanical description.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
13	5	Cognitive and skill	Sisal / Origin, economic importance, species , convenient environment, botanical description.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
14	5	Cognitive and skill	Ramie / Origin, economic importance, species , convenient environment, botanical description.	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports

15	5	Cognitive	Environmental factors that affect Ramie growth - Retting - soil and crop management	Lecture Discussion View pictures View video	Daily and monthly exam, attendance and reports
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11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fiber crops
Main references (sources)	Fiber crops
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific and International journals
Electronic References, Websites	- Cotton Growth & Development in Southern Kansas & Northern Oklahoma (including the panhandle). - Key Cotton Growth and Development Stages. - Cotton plant

Course Description Form

1. Course Name:					
Mechanization of field crops					
2. Course Code:					
FICM322					
3. Semester / Year:					
First semester/Third year					
4. Description Preparation Date:					
3/4/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of uni (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Professor Dr. Hussain Thahir Tahir Email: hussain.tahir@uokirkuk.edu.iq					
8. Course Objectives					
1- Introducing, qualifying and training students theoretically and practically: 2- Introducing a student to general concepts and definitions in Mechanization of field crops 3- Introducing the student to the types of tables 4- Introducing the student to arithmetic problems 5- The student's ability to train in service operations 6- Stimulating the student's deductive skills 7- Identify the problem or obstacle and know how to find the appropriate solution					
9. Teaching and Learning Strategies					
1- Manage, exploit and use machinery in the agricultural field in a scientific and technical manner. 2- Maintenance and repair of all machines and harvesters. 3- Know the main factors that must be taken into consideration when choosing a machine. 4- Productivity for harvesters and machinery. 5- Guiding the student to develop him academically and his ability in the future.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Show topic data word and Data Show	A historical overview of the science of agricultural machines and harvesters.	Calculator + Lectures	Daily questions + tests
2	5	Show topic data word and Data Show	Types of agricultural machinery.	Calculator + Lectures	Daily questions + tests
3	5	Show topic data word and Data Show	Types of harvesters.	Calculator + Lectures	Daily questions + tests
4	5	Show topic data word and Data Show	Types of field crops.	Calculator + Lectures	Daily questions + tests
5	5	Show topic data word and Data Show	Tillage equipment.	Calculator + Lectures	Daily questions + tests
6	Semester exam	Show topic data word and Data Show	Exam.	Calculator + Lectures	Daily questions + tests

7	5	Show topic data word and Data Show	Combine harvester.	Calculator + Lectures	Daily questions + tests
8	5	Show topic data word and Data Show	Yellow corn harvester.	Calculator + Lectures	Daily questions + tests
9	5	Show topic data word and Data Show	Cotton fairies.	Calculator + Lectures	Daily questions + tests
10	5	Show topic data word and Data Show	Oil crop harvesters.	Calculator + Lectures	Daily questions + tests
11	5	Show topic data word and Data Show	Sugar crop harvesters.	Calculator + Lectures	Daily questions + tests
12	5	Show topic data word and Data Show	Root crop uprooting.	Calculator + Lectures	Daily questions + tests
13	Semester exam	Show topic data word and Data Show	Harvesters for leguminous crops.	Calculator + Lectures	Daily questions + tests
14	5	Show topic data word and Data Show	Forage harvesters.	Calculator + Lectures	Daily questions + tests
15	5	Show topic data word and Data Show	Post-harvest machines.	Calculator + Lectures	Daily questions + tests

11.Course Evaluation

Daily and monthly tests through questions presented to them on the subject studied
Degrees are awarded for student participation in scientific research and reports
Student activities by creating posters and illustrations related to the academic subject

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Mechanization of field crops, Lutfi Hussein, 1978, Baghdad/Iraq
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, USGS

Course Description Form

1. Course Name:					
Legume Crops					
2. Course Code:					
LECR323					
3. Semester / Year:					
Second semester/ Third year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Dr. Hussein Abdullah Ahmed/ Email: husseinabdullah@uokirkuk.edu.iq					
8. Course Objectives					
<p>The aim of the article is to provide the student with a brief overview of the importance of leguminous crops, defining legumes and their significance, introducing the concept of nitrogen fixation symbiosis to the student, explaining intercropping, defining pulses and their importance, as well as discussing the nutritional value of pulse seeds. It also aims to familiarize the student with breeding programs for legumes such as chickpeas, lentils, mung beans, kidney beans, black beans, soybeans, field peas, and peas, and their respective importance.</p>					
9. Teaching and Learning Strategies					
<p>The student or learner is intended to be capable of enhancing cognitive objectives by understanding the concept of leguminous crops, recognizing the significance of leguminous crops in nutrition, understanding breeding programs and their importance for leguminous crops, and learning how to choose suitable varieties for cultivation. Additionally, the student should develop the ability to understand methods of cultivating leguminous crops and enhance their skills in utilizing methods and techniques for cultivating leguminous crops.</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge, skill and attitude	Historical Introduction to Legumes	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge, skill and attitude	The Importance of Legumes	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge, skill and attitude	Nitrogen Fixation Symbiotically	lecture	Daily and monthly exam, attendance and reports
4	5	Knowledge, skill and attitude	Inter-cropping	lecture	Daily and monthly exam, attendance and reports
5	5	Knowledge,	Peas: Economic	lecture	Daily and monthly exam,

		skill and attitude	Importance, Nutritional Value, Maturity, Harvest		attendance and reports
6	5	Knowledge, skill and attitude	Nutritional Value of Pea Seeds	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge, skill and attitude	Breeding Programs in Pea Plants	lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge, skill and attitude	Chickpeas: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
9	5	Knowledge, skill and attitude	Lentils: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge, skill and attitude	Mung Beans: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge, skill and attitude	Beans: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge, skill and attitude	Cowpeas: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge, skill and attitude	Soybeans: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge, skill and attitude	Field Peas: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge, skill and attitude	Peanuts: Economic Importance, Nutritional Value, Maturity, Harvest	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:					
Field crops disease					
2. Course Code:					
FICD324					
3. Semester / Year:					
Second semester/Third year					
4. Description Preparation Date:					
29/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: MOHAMMED ALBAYATI E-mail albayatiiu@uokirkuk.edu.iq					
8. Course Objectives					
The decision aims to familiarize itself with the pathology of field crops and the most important ways of combating them					
9. Teaching and Learning Strategies					
Verbal communication with students and motivation for teamwork in the learning process and use of communication skills...					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Plant Diseases and Classification	General Introduction to Plant Diseases and lassification	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
2	5	pathology	plant pathology	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
3	5	Plant Diseases and Disease Cycle	Diagnosis of Plant Diseases and Disease Cycle	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
4	5	Effect of nurses	Effect of nurses in the breadwinner's Phesselage	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
5	5	Sickness of the evangelical family	Sickness of the evangelical family such	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports

			as wheat and barley		
6	5	Legumes	Legumes Disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
7	5	Rice	Rice disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
8	5	Monthly Examination	Monthly Examination	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
9	5	cotton	cotton disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
10	5	maize	Maize disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
11	5	sunflower	Sunflower disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
12	5	sesame	Sesame disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
13	5	nematode	Nematode disease	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
14	5	Intrusive plants	Intrusive plants such as carriers and halops	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
15	5	Final Examination	Final Examination	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports

11. Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Field crops Disease
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Beekeeping					
2. Course Code:					
BEBR325					
3. Semester / Year:					
Second/2024					
4. Description Preparation Date:					
29/2/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours / Number of Units					
(5 Hours), 2 hrs. for the theoretical and 3 hrs. for the practical part / (3 Units)					
7. Course administrator's name					
Name: Dr. Ahmed Isam Dawood			Email: ahmed.essamd@uokirkuk.edu.iq		
8. Course Objectives					
<ul style="list-style-type: none"> • Preparing students who have the ability and knowledge of beekeeping. • Introducing students to the parts of bees, their functions, and methods of reproduction • introducing students how to perform the division process inside hives. • introducing students how to use a microscope and chemical tools to dissect bees in the laboratory. • Introducing students about how they can extract honey and examining hive 					
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> • Increasing the ability to beekeeping by asking constructive questions. • Capable to distinguish between types and genera of bees. • Doing division process inside hives and what are the most important features of Langstroth cells. • Knowing the important operations that take place in the hive when extracting honey. • Using Laptop and Data show. • Microscopic examination of the bee's body, its anatomy, and identification of its structures. 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Introducing	Historical basis Of beekeeping, economic importance	lecture	Daily and monthly exam, attendance and reports
2nd	5	The nature of living	Species of bees, taxonomic sequence of bees	lecture	Daily and monthly exam, attendance and reports
3rd	5	Honey bee breeds	Genetic characteristics	lecture	Daily and monthly exam, attendance and reports
4th	5	External anatomy	The head, thorax, and abdomen and its appendages	Use of laboratory	Daily and monthly exam, attendance and reports
5th	5	Internal anatomy	The digestive	Use of	Daily and monthly

			system and its appendages	laboratory	exam, attendance and reports
6th	5	The nervous system of the bee	Respiratory and reproductive system	Use of laboratory	Daily and monthly exam, attendance and reports
7th	5	First monthly test		lecture	Daily and monthly exam, attendance and reports
8th	5	The life of the sect members	Characteristics of the queen, worker, male	A field visit to beekeeping fields	Daily and monthly exam, attendance and reports
9th	5	Various phenomena in the life of members of the sect (expelling, collecting honey)	Reasons and ways to control it	lecture	Daily and monthly exam, attendance and reports
10th	5	Basic rules for establishing an apiary, basics of beekeeping	Lancastroth cell, its sections, features, and tools used	A field visit to beekeeping fields	Daily and monthly exam, attendance and reports
11th	5	False mothers	Reasons, ways to get rid of it	lecture	Daily and monthly exam, attendance and reports
12th	5	Division of bee colonies	Parcel production and division methods	lecture	Daily and monthly exam, attendance and reports
13th	5	Second monthly test		lecture	Daily and monthly exam, attendance and reports
14th	5	Bee diseases and pests	Red wasp, wax worm, Abu al-Khudair bird.	lecture	Daily and monthly exam, attendance and reports
15th	5	Bee diseases and pests	European and American brood disease, fungal diseases, viral diseases.	lecture	Daily and monthly exam, attendance and reports

11. Course Evaluation

The grade for the semester examination is (40%), (10) grades for daily preparation, participation, and submitting reports, (20) grades for the theoretical exams 10 for each exam, and (10) grades for the practical exam, and the grade for the final exam is (60%).

12. Learning and Teaching Resources

Required textbooks	Lectures prepared by the teacher based on relevant books and references
Main references (sources)	<ul style="list-style-type: none"> • Introduction to beekeeping book, written by Dr. Muzahim Ayoub Al-Sayegh and Abdul Rahim Omar Mustafa, 2003. • Encyclopedia of beekeeping and how to treat it, written by Mr. Hussein Rammal.
Recommended books and references	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Seeds technology					
2. Course Code:					
SETE326					
3. Semester / Year:					
Second semester/third year					
4. Description Preparation Date:					
31/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Lecturer Dr. Hassan Habib Hassan Email: hassan.habib@uokirkuk.edu.iq					
8. Course Objectives					
Introduce a student to a brief history of seed science and the stages of development of this science. Familiarize yourself with the aspects or factors that seed technology focuses on, starting from the stages of seed production. As well as identifying the scientific and technical factors that contributes to improving the steps of seed production.					
9. Teaching and Learning Strategies					
Introduce the student to how to plan in the cultivation of the field according to environmental data and the student's ability to understand the impact of environmental conditions and their impact on plants.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Introduction about Seed Technology. A historical overview of seeds testing in Iraq and the world and ISTA activity.	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Physical and chemical properties of seeds.	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Florescence, Pollination, Fertilization.	Knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Seed physiology	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Seed priming	Knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Seeds	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Certified seed production	Knowledge	lecture	Daily and monthly exam, attendance and reports

8	5	Field inspection, Isolation distance	Knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Seeds processing	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Basic rules to seeds production of the most important agricultural crops	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Seeds storage	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Seeds marketing	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Definitions	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Legislation and laws of seeds trading	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Seed technology researches and its recommendations in Iraq	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Seed Technology, authored by Dr. Ahmed Saleh Khalaf and Dr. Abdul Sattar Asmir Al-Rajbo, 2006
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:						
Drug Plants						
2. Course Code:						
DRPL411						
3. Semester / Year:						
First semester/ Fourth year						
4. Description Preparation Date:						
3/4/2024						
5. Available Attendance Forms:						
Is mandatory						
6. Number of Credit Hours (Total) / Number of Units (Total)						
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)						
7. Course administrator's name (mention all, if more than one name)						
Name: Azheen Othman mohammed						
Email: : azheenmohammed@uokirkuk.edu.iq						
8. Course Objectives						
This course description provides a brief summary of the most important characteristics of the course on medicinal and aromatic plants and the learning outcomes that the student is expected to achieve, demonstrate whether he or she has made the most of the learning opportunities available.						
9. Teaching and Learning Strategies						
<p>A- - Providing the graduate student with the skills of giving scientific lectures in various scientific forums.</p> <p>B- 2- Providing the graduate student with technical skills in order to work in scientific research centers.</p> <p>T- 3- Providing the graduate student with skills to work as a producer of medicinal and aromatic plants.</p> <p>D- 4- Providing the graduate student with the skills of extracting and evaluating active substances from medicinal and aromatic plants.</p> <p>C- 4- Providing the student with scientific research skills to continue communicating with new information in the field of horticultural sciences abroad and trying to transfer what is new and useful to the country.</p>						
10. Course Structure						
Week	Hours	Required Learning Outcomes	Unit or subject name		Learning method	Evaluation method
1	5	A historical overview of medicinal and	Introduction to the history of the development	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports	

		aromatic plants in the world and the Arab world	of medicinal and aromatic plants		
٢	◦	An introductory study of medicinal plants	Medicinal and aromatic plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٣	◦	Introducing the student to the economic and therapeutic importance of medicinal and aromatic plants	The economic and therapeutic importance of medicinal plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٤	◦	Study the reality of medicinal and aromatic plants in	The reality of medicinal and aromatic plants in Iraq	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٥	◦	Introducing the student to the importance of medicinal plants in preparing medicine and medical and aromatic supplies.	The importance of medicinal and aromatic plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٦	◦	Introducing the student to the divisions and classification of medicinal and aromatic plants	Division and classification of medicinal and aromatic plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٧	◦	A comprehensive study of secondary compounds in medicinal and aromatic plants	Secondary compounds in medicinal and aromatic plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٨	◦	Introducing the student to the general methods for extracting active substances from medicinal and aromatic plants	General methods for extracting active substances from medicinal and aromatic plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
٩	◦	A comprehensive study of the factors affecting the growth and productivity of medicinal and aromatic plants	Factors affecting the growth and productivity of medicinal and aromatic plants	Lecture, discussion, reports, practical work in the field	Quick and monthly exams, class activity and reports
١٠	◦	Teaching students methods of	Cultivation of medicinal and	Lecture, discussion, reports, practical work	Quick and monthly exams, class activity

Course Description Form

1. Course Name:					
Seeds technology					
2. Course Code:					
PLPH412					
3. Semester / Year:					
First semester/fourth year					
4. Description Preparation Date:					
31/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Lecturer Dr. Hassan Habib Hassan Email: hassan.habib@uokirkuk.edu.iq					
8. Course Objectives					
Introduce the student to the aspects or factors that plant physiology focuses on by studying the physiological processes that take place within the plant.					
9. Teaching and Learning Strategies					
Introduce the student to how to plan in the cultivation of the field according to environmental data and the student's ability to understand the impact of environmental conditions and their impact on physiological processes in plants.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Definition of plant physiology. Basic Rules of plant physiology	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Solution and colloidal systems	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Water Relationships	Knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Absorption and Translocation of water and Minerals	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Photosynthesis	Knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Photosynthesis	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Respiration	Knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Metabolism	Knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Biological of Nitrogen Fixation	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

10	5	Plant Nutrition	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Growth and Developments	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Plant hormones and plant growth regulators	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Plant physiology under stress	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Kinds of stress, effect of stress and stress tolerance mechanisms	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	General Review and Exam	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Field Crop Physiology, authored by Prof. Ahmed Abu Al-Naga Qandil and Prof. Ali Saeed Muhammad Sharif, 2012
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:					
Weed biology					
2. Course Code:					
WEBI413					
3. Semester / Year:					
First semester/four year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Zakarya Mahmod Mohamed					
Email: zakamahmod@uokirkuk.edu.iq					
8. Course Objectives					
1-Providing the student with practical and theoretical information on how to follow modern methods of managing jungles and ways to combat them					
2- Introducing the student to the harmful effects of the presence of jungles in the main crop and the pesticides used to combat them.					
3- Providing the student with practical and theoretical information on managing relevant fields, laboratories and laboratories.					
9. Teaching and Learning Strategies					
1-Teaching students how to deal with the field so that it has modern scientific specifications and methods of managing it.					
2- Introducing students to the characteristics of the bush, its seeds, harms, benefits, and methods of its spread.					
3- Enabling the student to know how to deal with laboratory materials and equipment.					
4- Identify the environmental factors affecting the jungle and how to resist harsh environmental conditions					
5 - Providing the student with the skills of applying scientific methods regarding the management of agricultural fields.					
6 - Training the student on the production of agricultural crops to achieve high productivity.					
7 - Providing the student with the necessary skills for laboratory tests related to crops and soil -					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	field visits and jungle learning	Definition of jungles, the importance of combating them, and a historical overview of combating jungles	Calculator + Lectures	Daily questions + tests
2	5	Identify pesticides and manual and automatic spraying tools	Characteristics of jungle plants and their seeds	Calculator + Lectures	Daily questions + tests
3	5	Combat Huntress Fields	The harms and benefits of jungles	Calculator + Lectures	Daily questions + tests
4	5	Identify the spreading jungle	Jungle classification	Calculator + Lectures	Daily questions + tests
5	5	Pressing and drying bush specimens	Jungle naming and natural classification	Calculator + Lectures	Daily questions + tests

6	Semester exam	Field visits to fields scattered with jungles	Artificial classification of bushes according to the growing season, the environment in which they grow, and the severity of the damage	Calculator + Lectures	Daily questions + tests
7	5	First month exam	First month exam	Calculator + Lectures	Daily questions + tests
8	5	A visit to the Prevention Department in the Agriculture Directorate	Methods of bush reproduction	Calculator + Lectures	Daily questions + tests
9	5	Planting jungle seeds	Factors determining the appropriate dates for combating weeds.	Calculator + Lectures	Daily questions + tests
10	5	Identify the stages of bush growth	Preventive means to reduce bush damage	Calculator + Lectures	Daily questions + tests
11	5	Visits to agricultural offices	Dormancy in annual seeds and its determining factors	Calculator + Lectures	Daily questions + tests
12	5	Discussing the results of pesticide experiments	Dormancy in the buds of the ground parts of perennial shrubs and the factors affecting it	Calculator + Lectures	Daily questions + tests
13	Semester exam	Conducting the manual hoeing and weeding process	Antibiotic phenomenon	Calculator + Lectures	Daily questions + tests
14	5	Learn about spraying tools and how to calculate the application rate	Definition of jungles, the importance of combating them, and a historical overview of combating jungles	Calculator + Lectures	Daily questions + tests
15	5	Second month exam	Characteristics of jungle plants and their seeds	Calculator + Lectures	Daily questions + tests

11. Course Evaluation

Daily and monthly tests through questions presented to them on the subject studied
Degrees are awarded for student participation in scientific research and reports
Student activities by creating posters and illustrations related to the academic subject

12. Learning and Teaching Resources

Required textbooks (curriculum books, if any)	weed science Dr. Baqir Al-Jubouri weed and the basics of control, Dr. Ghanem and Faiq Chalabi weed and methods of combating them, Dr. Salem Hamadi Antar
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, USGS

Course Description Form

1. Course Name:					
Field crop management					
2. Course Code:					
FICM414					
3. Semester / Year:					
first semester/ fourth year					
4. Description Preparation Date:					
1/4/2024					
5. Available Attendance Forms:					
Attendance at lecture is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
5 Hours (2 hours theory , 3 hours practical per week) - Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.abbas Abdulla taha \ Email: abbasabdulla@uokirkuk.edu.iq					
8. Course Objectives					
<ul style="list-style-type: none"> - Teaching students the basics of field crop management - Teaching students methods for using agricultural processes and practices that achieve the best agricultural crop management - Teaching students about agricultural management processes and how to follow the precise scientific method in order to successfully cultivate various field crops - Introducing students to the types of plants, the factors affecting the growth and development of crops, and the use of modern technologies in agriculture 					
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> -follow the lecture methods and use modern presentation methods -direct dialogue with student by asking them questions -Assigning student to homework (writing scientific reports) 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Cognitive	The concept of field crop management	Lecture Discussion	Daily attendance and exam
2	5	Cognitive	How to manage the photosynthesis process	Lecture Discussion	Daily attendance and exam
3	5	Cognitive	The relationship between temperature, light and crop growth	Lecture Discussion	Daily attendance and exam
4	5	Cognitive	Growth and development of crops	Lecture Discussion	Daily attendance and exam
5	5	Cognitive	Methods of growing crops	Lecture Discussion	Daily attendance and exam

6	5	Cognitive	Acclimatization and adaptation of crops	Lecture Discussion	Daily attendance and exam
7	5	Cognitive	The relationship of water to field crops	Lecture Discussion	Daily attendance and exam
8	5	Cognitive	Reclamation of soils affected by salinity	Lecture Discussion	Daily attendance and exam
9	5	Cognitive	Reclaiming basal soils and studying the clay material	Lecture Discussion	Daily attendance and exam
10	5	Cognitive	Crop service operations	Lecture Discussion	Daily attendance and exam
11	5	Cognitive	Weeds and ways to combat them	Lecture Discussion	Daily attendance and exam
12	5	Cognitive	The concept of fertilizing plants	Lecture Discussion	Daily attendance and exam
13	5	Cognitive	Mineral nutrition and fertilizers	Lecture Discussion	Daily attendance and exam
14	5	Cognitive	Integrated management of field crop insects	Lecture Discussion	Daily attendance and exam
15	5	Cognitive	Composition, maturation and dormancy of seeds	Lecture Discussion	Daily attendance and exam

11. Course Evaluation

Final theoretical exam	Final practical test	Daily theoretical tests	Practical semester tests	Theoretical semester tests
40	20	5	15	20

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	-Scientific foundations for the management, production and improvement of field crops, Dr. Iyad Hassan Al-Muaini, Dr. Muhammad Awaid Ghadeer -Lectures on crop management, Dr. Medhat Majeed Al-Sahuki 2012 -Grain crop production, Abdul Hamid Muhammad Hassanein / Al-Azhar University - Faculty of Agriculture 2019
Main references (sources)	Scientific journals in agricultural and economic specialties
Recommended books and references (scientific journals, reports...)	International journals within international classifications and standards
Electronic References, Websites	International journals within international classifications and standards

Course Description Form

1. Course Name:					
Land Cultivation					
2. Course Code:					
LACU415					
3. Semester / Year:					
First semester/ fourth year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Ashraf hashim ali Email: ashrafhacioglu@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge to identify agricultural lands, how to raise productivity per unit area and exploit it, and the factors affecting productivity.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	General introduction	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Crop production factors	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Factors that increase production	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Carbon representation	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Lost after the harvest	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	The relationship of energy to crop productivity	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports

7	5	Cultivation of lands with topographic defects	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Human need for food and the existing problem	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Calculating thermal units	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Reasons for differences in planting densities	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Energy expended for service operations	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Operations to increase energy efficiency	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Some causes of loss or damage	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Storing agricultural crops	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Productive factors	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Judicial Cultivation, Prof. Dr. Medhat Sahuki
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Molecular Genetics					
2. Course Code:					
MOGE416					
3. Semester / Year:					
First semester/fourth year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Dr. Hussein Abdullah Ahmed/ Email: husseinabdullah@uokirkuk.edu.iq					
8. Course Objectives					
<p>The aims to introduce the student to the concept and scope of molecular genetics, the nature of genetic material in living organisms, related experiments, as well as the structure of DNA in prokaryotic and eukaryotic cells. Additionally, it discusses mechanisms of genetic information transfer among microorganisms, gene cloning, and recombinant DNA technology.</p>					
9. Teaching and Learning Strategies					
<p>Make the student or learner capable of improving cognitive goals by introducing them to the types of genetic material at the outset, including the reality of the nucleus and the mechanism of genetic material transfer from one generation to another, focusing on the chemistry of nucleic acids. DNA is the genetic material, and topics such as the discovery of DNA, DNA replication, forms of DNA, discovery of nucleosomes, nucleosome structure, chromosome structure, and DNA extraction should be covered. Additionally, the student should be able to create slides on cloning, genetic engineering, and applications of PCR.</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge, skill and attitude	Concept of molecular genetics and its areas of interest	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge, skill and attitude	Nature of genetic material	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge, skill and attitude	Structure and packaging of nucleic acids	lecture	Daily and monthly exam, attendance and reports
4	5	Knowledge, skill and attitude	DNA replication	lecture	Daily and monthly exam, attendance and reports

5	5	Knowledge, skill and attitude	Concept of a gene	lecture	Daily and monthly exam, attendance and reports
6	5	Knowledge, skill and attitude	Gene cloning	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge, skill and attitude	Regulation of gene expression	lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge, skill and attitude	Principles of gene cloning (gene amplification) and techniques for generating new DNA variants	lecture	Daily and monthly exam, attendance and reports
9	5	Knowledge, skill and attitude	DNA transfer systems in bacteria	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge, skill and attitude	Genetic mutations	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge, skill and attitude	Translation	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge, skill and attitude	Genetic code and protein synthesis	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge, skill and attitude	Molecular mechanisms of bonding and crossing over	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge, skill and attitude	Molecular techniques	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge, skill and attitude	Genetically modified organisms and biosecurity	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Molecular Biology / Prof. Dr. Muhammed Omar Muhyiddin Qazanji and Assist. Prof. Dr. Hamid Aboud Jabr / 2017 Principles of Molecular Genetics / Dr. Mohammed Baqer Sahib Al-Shahi Prof. Dr. Ali Hamoud Al-Saadi, and Prof. Dr. Haider Kamel Zaidan / 2013
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:

English language 4/ intermediate level

2. Course Code:

ENGL404

3. Semester / Year:

First semester/ fourth year

4. Description Preparation Date:

31/03/2024

5. Available Attendance Forms:

Mandatory

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

(1) Hour, Number of units (1) unit

7. Course administrator's name (mention all, if more than one name)**Name:** Berevan Qader Omar **Email:** beree.omer@gmail.com**8. Course Objectives**

Teaching this curriculum aims to make the student familiar with the English language as it is a global language from which the students will benefit widely in their academic life. This curriculum is an extension of what the students learned in the previous three stages.

9. Teaching and Learning Strategies

It is a semi-integrated curriculum for the intermediate level, which includes the necessary basics for learning the English language for the intermediate level, along with exercises. It includes auxiliary verbs and four types of verb tenses, with an explanation of each tense in the form of the affirmative, negative, and question. It also includes an introduction to the modal verbs regarding permission, Obligation and how to make offer and request, as well as an introduction to the future tense.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction to modal auxiliary verbs	Knowledge	lecture	Exercise
2	1	Tenses and auxiliary verbs	Knowledge	lecture	Exercise
3	1	Negative and auxiliary verbs	Knowledge	lecture	Exercise
4	1	Question and auxiliary verbs	Knowledge	lecture	Exercise

5	1	Present simple for intermediate level	Knowledge	lecture	Exercise
6	1	Present continuous for intermediate level	Knowledge	lecture	Quiz
7	1	Past simple for intermediate level	Knowledge	lecture	Exercise
8	1	Past continuous for intermediate level	Knowledge	lecture	Exercise
9	1	Modal verbs	Knowledge	lecture	Exercise
10	1	Modal verbs of obligation and permission	Knowledge	lecture	quiz
11	1	Should, ought to , must	Knowledge	lecture	quiz
12	1	Making request	Knowledge	lecture	Exercise
13	1	Making offers	Knowledge	lecture	Exercise
14	1	Introduction to future	Knowledge	lecture	Exercise
15	1	Future with facts and predictions	Knowledge	lecture	Quiz

11.Course Evaluation

Semester endeavor (40 marks): 15 marks for the first month exam + 5 marks for quiz
15 marks for second month exam + 5 marks for quiz
Final exam (60 marks)

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway plus (elementary student book / written by : Liz and John Soars / Oxford university press
Main references (sources)	Cambridge press
Recommended books and references (scientific journals, reports...)	My English library website
Electronic References, Websites	You tube and some useful websites

Course Description Form

1. Course Name:					
Plant Breeding					
2. Course Code:					
PLBR421					
3. Semester / Year:					
Second semester/fourth year					
4. Description Preparation Date:					
٢٨/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Dr. Hussein Abdullah Ahmed/ Email: husseinabdullah@uokirkuk.edu.iq					
8. Course Objectives					
<p>The aim of the article is to provide the student with a brief overview of the importance of plant breeding, define the science of plant breeding, as well as the characteristics of plant breeders, the importance of plant propagation systems, and familiarize the student with the concepts of sterility and self-incompatibility systems and how they are utilized in plant breeding. Additionally, the article aims to introduce the student to general plant breeding methods, followed by methods of breeding self-pollinated and cross-pollinated plants, introducing the concept of hybrid vigor, methods for estimating hybrid vigor, breeding through mutation induction, breeding through chromosomal doubling, and breeding for stress tolerance.</p>					
9. Teaching and Learning Strategies					
<p>Making the student or learner capable of enhancing cognitive objectives by introducing them to various crop types, informing them about self-pollinated and cross-pollinated crops, familiarizing them with plant propagation systems, introducing them to methods for estimating hybrid vigor, and explaining to them how plant hybridization is carried out.</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge, skill and attitude	Introduction to the history of plant breeding and definition of plant breeding science	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge, skill and attitude	Biology of plant reproduction systems	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge, skill and attitude	Sterility, incompatibility, and their utilization in plant breeding	lecture	Daily and monthly exam, attendance and reports
4	5	Knowledge,	Methods of breeding self-	lecture	Daily and monthly exam,

		skill and attitude	pollinated crops		attendance and reports
5	5	Knowledge, skill and attitude	Introduction to the history of plant breeding and definition of plant breeding science	lecture	Daily and monthly exam, attendance and reports
6	5	Knowledge, skill and attitude	Methods of breeding cross-pollinated crops	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge, skill and attitude	Hybridization	lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge, skill and attitude	Hybrid vigor and hybrid varieties	lecture	Daily and monthly exam, attendance and reports
9	5	Knowledge, skill and attitude	Breeding of vegetatively propagated plants	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge, skill and attitude	Breeding through mutation induction	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge, skill and attitude	Breeding through chromosomal duplication	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge, skill and attitude	Breeding for disease and insect resistance	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge, skill and attitude	Community genetics	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge, skill and attitude	Production of improved seeds	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge, skill and attitude	Tissue culture and its role in breeding programs	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Plant Genetics Engineering / Professor Dr. Medhat Magid El-Sahoky, Professor Dr. Saddam Hakim Jayyad, and Dr. Abdul Basit Abdul Razzaq Dawood Plant Breeding and Improvement / Assistant Professor Dr. Fuad Rizq Al-Barki / 2020 Plant Breeding and Genetic Engineering / Professor Dr. Hassan Azam and Assistant Professor Dr. / 2009
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in crop science

Course Description Form

1. Course Name:					
Plant Growth Regulators					
2. Course Code:					
PLGR422					
3. Semester / Year:					
Second Semester/4 th year					
4. Description Preparation Date:					
۳۱/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Saad Abdulmageed Waheeb Email: sadoori@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to the use of plant growth regulators and prepare ideal laboratory and field concentrations					
9. Teaching and Learning Strategies					
1- Follow the lecture method and use modern presentation methods. 2- Conduct laboratory experiments. 3- Direct dialogue with students through the daily exam. 4- Homework assignments (writing scientific reports).					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Terms related to plant growth regulators	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Plant growth regulators: auxins	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Gibberellins	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Gibberellins	knowledge	lecture	Daily and monthly exam, attendance and reports
5	5	Cytokinin	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Monday	knowledge	lecture	Daily and monthly

					exam, attendance and reports
7	5	Absciscic acid	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Other compounds act as growth regulators	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Examples and applications of preparing concentrates	knowledge	lecture	Daily and monthly exam, attendance and reports
10	5	Physiological effects of plant growth regulators	knowledge	lecture	Daily and monthly exam, attendance and reports
11	5	Vegetative growth, flowering, nodulation	knowledge	lecture	Daily and monthly exam, attendance and reports
12	5	Ripening, senescence, shedding and floating phenomenon	knowledge	lecture	Daily and monthly exam, attendance and reports
13	5	The use of growth regulators in tissue culture	knowledge	lecture	Daily and monthly exam, attendance and reports
14	5	The use of growth regulators in tissue culture	knowledge	lecture	Daily and monthly exam, attendance and reports
15	5	Vegetative spraying system	knowledge	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Plant growth regulators
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Weed control					
2. Course Code:					
WECO423					
3. Semester / Year:					
Second semester/four year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Zakarya Mahmud Mohamed			Email: zakamahmod@uokirkuk.edu.iq		
8. Course Objectives					
<p>1-Providing the student with practical and theoretical information on how to follow modern methods of managing jungles and ways to combat them</p> <p>2- Introducing the student to the harmful effects of the presence of jungles in the main crop and the pesticides used to combat them.</p> <p>3- Providing the student with practical and theoretical information on managing relevant fields, laboratories and laboratories.</p>					
9. Teaching and Learning Strategies					
<p>1-Teaching students how to deal with the field so that it has modern scientific specifications and methods of managing it.</p> <p>2- Introducing students to the characteristics of the bush, its seeds, harms, benefits, and methods of its spread.</p> <p>3- Enabling the student to know how to deal with laboratory materials and equipment.</p> <p>4- Identify the environmental factors affecting the jungle and how to resist harsh environmental conditions</p> <p>5 - Providing the student with the skills of applying scientific methods regarding the management of agricultural fields.</p> <p>6 - Training the student on the production of agricultural crops to achieve high productivity.</p> <p>7 - Providing the student with the necessary skills for laboratory tests related to crops and soil and how to give appropriate scientific judgments</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Field visits and jungle learning	Definition of jungles, the importance of combating them, and a historical overview of combating jungles	Calculator + Lectures	Daily questions + tests
2	5	Identify pesticides and manual and automatic spraying tools	Characteristics of jungle plants and their seeds	Calculator + Lectures	Daily questions + tests
3	5	Combat Huntress Fields	The harms and benefits of jungles	Calculator + Lectures	Daily questions + tests
4	5	Identify the spreading jungle	Classification and groups of pesticides	Calculator + Lectures	Daily questions + tests
5	5	Pressing and drying bush specimens	Pesticide survival and pesticide loss	Calculator + Lectures	Daily questions + tests

6	Semester exam	Visit bush infested fields	Selectivity of pesticides, factors affecting selectivity	Calculator + Lectures	Daily questions + tests
7	5	First month exam	First month exam	Calculator + Lectures	Daily questions + tests
8	5	Visit agricultural offices	Using plowing, mowing, and flooding	Calculator + Lectures	Daily questions + tests
9	5	Spray different pesticides with different tools	Factors determining the appropriate dates for combating weeds.	Calculator + Lectures	Daily questions + tests
10	5	Cleaning the field by hoeing	Preventive means to reduce bush damage	Calculator + Lectures	Daily questions + tests
11	5	Identify pesticide containers and the information registered on them	Pesticide metabolism	Calculator + Lectures	Daily questions + tests
12	5	Conduct an experiment on antibiotics	Methods of combating weeds. Mechanical method, manual uprooting, hoeing with axes	Calculator + Lectures	Daily questions + tests
13	Semester exam	Conduct an experiment on the persistence of the pesticide	Pesticides and plants. Absorption and transfer of pesticides	Calculator + Lectures	Daily questions + tests
14	5	Preparation of jungle plant extracts	Ways to combat weeds	Calculator + Lectures	Daily questions + tests
15	5	Second month exam	Second month exam	Calculator + Lectures	Daily questions + tests

11. Course Evaluation

Daily and monthly tests through questions presented to them on the subject studied
Degrees are awarded for student participation in scientific research and reports
Student activities by creating posters and illustrations related to the academic subject

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	weed science Dr. Baqir Al-Jubouri weed and the basics of control, Dr. Ghanem and Faiq Chalab weed and methods of combating them, Dr. Salem Hamadi Antar
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, USGS

Course Description Form

1. Course Name:					
Pastures Management					
2. Course Code:					
PAMA424					
3. Semester / Year:					
Second semester/ fourth year					
4. Description Preparation Date:					
28/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof. Dr. Ashraf hashim ali Email: ashrafhacioglu@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to raise the level of students' knowledge to learn about pastures, natural pastures, artificial pastures, how to graze and preserve natural pastures, and know the types of pastures.					
9. Teaching and Learning Strategies					
Verbal communication with students, urging them to work together in the learning process, using written communication skills to increase comprehension, as well as the brainstorming method to attract students' attention, activate the thinking strategy according to the student's ability, and conduct scientific visits to agricultural projects.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	General introduction to pastures	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Definition of the importance of pastures	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Types of pastures	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Learn about pastoralism	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	5	Types of grazing	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Pastoral plants and their importance	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Types of pastures	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Vegetation	knowledge	lecture	Daily and monthly exam,

					attendance and reports
9	5	Pasture condition	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Desertification	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Exploitation of pastures	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Poisoning and bloating	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Grazing areas in Iraq	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Pasture condition	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Grazing in the steppes and plateaus	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester examination is (40%), divided into (10) grades for daily preparation, participation, and submitting reports, (30) grades for monthly exams, with two monthly exams for each exam (15) grades, and the grade for the final exam is (60%).

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Natural Pasture Management - Written by Dr. Ramadan Al-Takriti and Mr. Abbas Mahdi Al-Han - 1981 - University of Mosul Forage crops and pastures (Part One) - written by Dr. Muhammad Al-Yad Radwan and Dr. Abdullah Qasim Al-Fakhri - 1975 - University of Mosul
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Environmental stress					
2. Course Code:					
ECST425					
3. Semester / Year:					
Second semester/four year					
4. Description Preparation Date:					
31/3/2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(5) hours, (2) hours for the theoretical part and (3) hours for the practical part, number of units (3)					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Zakarya Mahmud Mohamed Email: zakamahmod@uokirkuk.edu.iq					
8. Course Objectives					
<p>The course investigated identifying the most important environmental stresses affecting crop production</p> <p>It includes studying the response of crops and physiology to these stresses</p> <p>It includes studying the scientific methods used to reduce the impact of these conditions</p> <p>Studying the relationship between these stresses and leaving antioxidants in the plant</p> <p>Studying the relationship between environmental stress and free radicals</p>					
9. Teaching and Learning Strategies					
<p>1- Teaching students how to deal with the field so that it has modern scientific specifications and methods of managing it.</p> <p>2- Introducing students to the harsh environmental conditions of plants and how to deal with them.</p> <p>3- Enabling the student to know how to deal with laboratory materials and equipment.</p> <p>4- Identify the environmental factors affecting the plant and how to resist harsh environmental conditions</p> <p>5 - Providing the student with the skills of applying scientific methods regarding the management of agricultural fields.</p> <p>6 - Training the student on the production of agricultural crops to achieve high productivity.</p> <p>7 - Providing the student with the necessary skills for laboratory tests related to crops and soil and how to give appropriate scientific judgments</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3+2	A general introduction to biological stresses, which include: high temperature intensity, low temperature intensity, water stress, salt stress, stress elements.	A field tour to learn about the types of tensions	Calculator + Lectures	Daily questions + tests
2	3+2	Intensity of high temperature, tolerance to high temperature, nature of the damage caused by high temperature, means of protecting plants from high temperature damage.	Water tension experiment	Calculator + Lectures	Daily questions + tests
3	3+2	The physiological basis for tolerance to high temperature, calcium and its relationship to heat intensity, the effect of temperature on the plant life cycle, plant adaptation and resistance to high temperature.	Salinity field experiment	Calculator + Lectures	Daily questions + tests

4	3+2	Low temperature stress, adaptation to cold, water stress, its concept, levels, and methods for determining it.	Experience dryness	Calculator + Lectures	Daily questions + tests
5	3+2	Methods of causing water stress in plants, classification of plants according to their resistance to drought, methods of adapting plants to resist drought.	Experiment with low temperature anvils	Calculator + Lectures	Daily questions + tests
6	Semester exam	Effects of water stress, seed germination, photosynthesis,	Anvil experiment with the effect of high temperature	Calculator + Lectures	Daily questions + tests
7	3+2	Effects of water stress on carbohydrates.	Discussion of experimental results	Calculator + Lectures	Daily questions + tests
8	3+2	The effect of tension on nitrogen fixation, water potential and its relationship to the formation of proteins and amino acids.	Experiment with the lighting effect	Calculator + Lectures	Daily questions + tests
9	3+2	Oxidative stress, salts and their effect on plants (introduction). Sources of salts, salt measurements, harms of high salinity, salt-loving plants and their uses.	Discuss tensile experiments	Calculator + Lectures	Daily questions + tests
10	3+2	Introduction to salt-loving plants, the physiological basis of salt tolerance in plants, the effects of salt, resistance of plants to salt, methods of salt resistance.	Agricultural practices to reduce yield decline in saline environments, use of salt water in irrigation	Calculator + Lectures	Daily questions + tests
11	3+2	Differences between plants in their resistance to salinity, salt stress and the role of proline, salt tolerance in cereal crops.	A visit to the cement factory to learn about pollution	Calculator + Lectures	Daily questions + tests
12	3+2	Salinity tolerance in fodder crops, sodium and salt stress, calcium and salt stress. The relationship of proline and ABA to water and salt stress.	A visit to the northern oil fields	Calculator + Lectures	Daily questions + tests
13	Semester exam	Environmental pollution and free radicals	Testing saline soils in the laboratory	Calculator + Lectures	Daily questions + tests
14	3+2	Salinity tolerance in cereal crops,	water test in the laboratory	Calculator + Lectures	Daily questions + tests
15	3+2	A general introduction to biological stresses, which include: high temperature intensity, low temperature intensity, water stress, salt stress, stress elements.	A field tour to learn about the types of tensions	Calculator + Lectures	Daily questions + tests

11. Course Evaluation

Daily and monthly tests through questions presented to them on the subject studied
Degrees are awarded for student participation in scientific research and reports
Student activities by creating posters and illustrations related to the academic subject

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Plant abiotic stress
Main references (sources)	The Internet in general
Recommended books and references (scientific journals, reports...)	Messages and theses, ancient and modern
Electronic References, Websites	Iraqi academic journals, Research gate, USGS