



Ministry of Higher Education
And Scientific Research
University of Kirkuk
College of Agriculture
Department of Horticulture &
Landscape design



**Academic Program and Course
Description Guide
University of Kirkuk
College of Agriculture
Department of Horticulture &
Landscape design**

2023 - 2024

Academic Program Description

University Name: Kirkuk

Faculty/Institute: College of Agriculture

Scientific Department: Horticulture & Landscape design

Academic or Professional Program Name: B.Sc. Horticulture & Landscape design

Final Certificate Name: B.Sc. Agricultural Sciences (Horticulture & Landscape design)

Academic System: Semester

Description Preparation Date: 29 / 03 / 2024

File Completion Date: 29 / 03 / 2024



Signature:

Head of Department Name:

Prof. Dr. Kefaia Gahzi Saeed

Date: 31 / 03 / 2024

Signature:

Scientific Associate Name:

Prof. Dr. Ammar Qahtan Shanoon

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: Dr. Ahmed Isam

Date: 04/04/2024

Signature:

Approval of the Dean

Dr. Osama I. Ahmed

04/04/2024

1. Program Vision

The department aspires to prepare technical agricultural engineers in the field of horticultural sciences and garden engineering (ornamental plants, fruits and vegetables, and plant tissue culture, as well as garden engineering and design) by improving the quality of teaching in the department, raising the scientific level of students, and qualifying them in the field of scientific and technical knowledge so that the department achieves excellence, quality, and development. The student's ability in the field of purposeful applied scientific research in line with the college's vision.

2. Program Mission

Preparing a distinguished horticultural cadre specialized in the field of horticultural sciences within special quality standards to meet the requirements of the labor market to contribute to the advancement of the agricultural sector and achieve food and environmental security through the application and dissemination of scientific and technical knowledge to serve the community.

3. Program Objectives

1-Developing curricula related to the production of fruits, vegetables, ornamentals, and garden engineering and design at the undergraduate and graduate levels to keep pace with modern scientific trends.

2- Preparing advanced and distinguished scientific programs in the field of horticultural sciences (fruits, vegetables, ornamentals, and garden engineering and design) in light of national standards for academic programs.

3- Continuous preparation of graduates to be able to apply scientific and technical

knowledge and modern agricultural technology to serve and develop society and compete at the local, regional and international levels, as well as providing horticultural agricultural guidance in its various fields and delivering modern agricultural knowledge, information and technology to farmers for the purpose of adopting and applying it in their fields.

4- Preparing a database in the department for educational and research aspects and data for faculty members.

5- Establishing a system for continuous monitoring and evaluation in the department with the aim of ensuring continuous development of performance in the fields of education, scientific research, community service and environmental development.

6- Cooperating with college departments, colleges, and research centers in other ministries in conducting joint research that serves the community.

7- Providing expertise, studies and technical consultations related to the establishment of fruit and vegetable orchards and ornamental plants, as well as garden engineering and design, to various relevant public and private sectors and through the Agricultural Advisory Office.

4. Program Accreditation

The program seeks to obtain program accreditation

5. Other external influences

Coordination with relevant agricultural departments as well as private sector participation

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	12	14	9.6%	Basic
College Requirements	20	48	32.9%	Basic
Department Requirements	33	81	57.5%	Basic
Summer Training	1	Satisfied	9.6%	Basic
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	parctical
First year/ First semester	MAEQ111	Machines Equipment	2	3
	PLSU112	Plane Survey	1	3
	PRSO113	Principles of Soil	2	3
	MATH114	Mathematics	2	-
	BOTA115	Botany	2	3
	ORCH116	Organic Chemistry	2	3
	COAP117	Computer Application1	-	3
	ARLA118	Arabic Language	2	-
	HURD119	Human Rights and Democracy	2	-
First year/ Second semester	PRFC121	Principles of Field Crops	2	3
	PRAP122	Principles of Animal Production	2	3
	PRFP123	Principles of Food Processing	2	3
	AGEC124	Agricultural Economics	2	-

	STAT125	Statistics	1	3
	ENLA126	English Language 1	1	-
	COAP127	Computer Application 2	-	3
	ENDR128	Engineering Drawing	-	3
Second year/ First semester	MICR211	Microorganisms	2	3
	GADE212	Garden Design	2	3
	PLPH213	Plant Physiology	2	3
	PRPA214	Principles of Plant Anatomy	2	3
	PLGE215	Plant Genetic	2	3
	HOEN216	Horticulture Entomology	1	3
	COAP217	Computer Application 3	-	3
	ENLA218	English Language 2	1	-
	BAPC219	Baath Party Crime in Iraq	2	-
	AGEX2110	Agricultural Extension	2	-
Second year/ second semester	PLNU221	Plant Nutrition	2	3
	BIOC222	Biochemistry	2	3
	PLEC223	Plant Ecology	2	3
	ORCU224	Organic Culture	2	3
	NUPR225	Nurseries and Propagation	2	3
	WECO226	Weeds Control	2	3
	COAP227	Computer Application 4	-	3
	FRDE228	Freedom and Democracy	1	-
Third year/	DEFR311	Deciduous Fruits 1	2	3

First semester	VEPR312	Vegetable Production 1	2	3
	FLOR313	Floriculture 1	1	3
	EXDA314	Experimental Design and Analysis	2	3
	PLGR315	Plant Growth Regulators	2	3
	MEAP316	Medicinal & Aromatic Plants	2	3
	IRDR317	Irrigation and Drainage	2	3
Third year/ Second semester	DEFR321	Deciduous Fruits 2	2	3
	VEPR322	Vegetable Production 2	2	3
	FLOR323	Floriculture 2	1	3
	BEES324	Bees	2	3
	HOPA325	Horticulture Pathology	1	3
	PLBR326	Plant Breeding	2	3
	ENLA327	English Language 3	1	-
Fourth year/ First semester	TICU411	Tissue Culture	2	3
	EVFR412	Evergreen Fruits	2	3
	VESP413	Vegetable Seed Production	2	3
	GRCU414	Greenhouse Cultivation	2	3
	LADE415	Landscape Design	1	3
	FAMA416	Farms Management	1	3
	REPR417	Research Project	-	3
Fourth year/ Second semester	VICU421	Vitis Culture	2	3
	DAPA422	Date Palm	2	3
	BIOT423	Biotechnology	2	3
	STHA424	Storage & Handling	2	3

	SOFF425	Soil Fertility and Fertilizers	2	3
	ENLA426	English Language 4	1	-
	SEMI427	Seminars	1	-
	REPR428	Research Project	-	3

8. Expected learning outcomes of the program

Knowledge

- 1- Introducing the student to the theories related to different horticultural crops.
- 2- Understanding methods of growing horticultural crops and methods of managing orchards and farms.
- 3- Understanding and understanding the agricultural challenges and problems facing horticultural plants and arriving at appropriate solutions.
- 4- Enabling the student to understand horticultural sciences and equipping various relevant departments with specialized scientific cadres
- 5- Teaching students the management methods used in various crop cultivation projects.
- 6- Teaching students how to diagnose symptoms of physiological diseases and insects infesting horticultural crops and finding appropriate methods to combat them.

Skills

- 1- Providing the student with the skills to carry out agricultural operations for various horticultural crops.
- 2- Preparing agricultural cadres capable of dealing with horticultural crops, spreading their cultivation, and how to sustain the areas cultivated with them.

3- Enabling the student to be able to diagnose problems in growing horticultural crops.

4- Qualifying students to advance the reality of horticultural 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.

9. 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.

10. 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.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements /Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Horticulture & Landscape design	Physiological of ornamental plants			1	
Assistant Professor	Horticulture & Landscape design	Fruit production			3	
Assistant Professor	Horticulture & Landscape design	Tissue culture			1	

Lecturer	Horticulture & Landscape design	Horticultural sciences			1	
Lecturer	Horticulture & Landscape design	Fruit production			1	
Lecturer	Horticulture & Landscape design	Horticulture. flowers and ornamental plants			1	
Assistant Lecturer	Horticulture & Landscape design	Horticultural sciences			1	
Assistant Lecturer	Horticulture & Landscape design	Horticulture & Landscape design			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 matters, 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 the curricula of academic courses 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.

12. Acceptance Criterion

The department sets a student admission plan 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.

13. The most important sources of information about the program

- 1- Methodological books on free education.
- 2- Internet resources through the Internet Division.
- 3- Reference books, master's theses, and doctoral theses in the department and college libraries.
- 4- Scientific journals and periodicals of Iraqi, Arab and foreign universities.

14. Program Development Plan

- 1- Concluding joint cooperation agreements with relevant agricultural institutions for the purpose of creating job opportunities for graduates of the Department of Horticulture and Landscape Engineering, 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 motivate the current staff to seek academic promotions to higher ranks.

Program Skills Outline

				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year/ First semester	MAEQ111	Machines Equipment	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SUPL112	Plane Survey	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SOPR113	Principles of Soil	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	THMA114	Mathematics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	TABO115	Botany	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	CHOR116	Organic Chemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	APCO117	Computer	Basic	*	*	*	*	*	*	*	*	*	*	*	*

		Application1													
	LAAR118	Arabic Language	Basic	*	*	*	*	*	*	*	*	*	*	*	*
First year / Second semester	HURD119	Human Rights and Democracy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PRFC121	Principles of Field Crops	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PRAP122	Principles of Animal Production	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PRFP123	Principles of Food Processing	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	AGEC124	Agricultural Economics	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	ATST125	Statistics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	LAEN126	English Language 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	APCO127	Computer Application 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENDR128	Engineering Drawing	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Second year/ First semester	MICR211	Microorganisms	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	GADE212	Garden Design	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLPH213	Plant Physiology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PRPA214	Principles of Plant Anatomy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLGE215	Plant Genetic	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	HOEN216	Horticulture Entomology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	COAP217	Computer Application 3	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENLA218	English Language 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BAPC219	Baath Party Crime in Iraq	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	AGEX2110	Agricultural Extension	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Second year/ second semester	PLNU221	Plant Nutrition	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BIOC222	Biochemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLEC223	Plant Ecology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ORCU224	Organic Culture	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	NUPR225	Nurseries and Propagation	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	WECO226	Weeds Control	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	COAP227	Computer Application 4	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FRDE228	Freedom and Democracy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Third year/ First semester	DEFR311	Deciduous Fruits 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	VEPR312	Vegetable Production 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FLOR313	Floriculture 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	EXDA314	Experimental Design and Analysis	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	PLGR315	Plant Growth Regulators	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	MEAP316	Medicinal & Aromatic Plants	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	IRDR317	Irrigation and Drainage	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Third year/ Second semester	DEFR321	Deciduous Fruits 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	VEPR322	Vegetable Production 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FLOR323	Floriculture 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BEES324	Bees	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	HOPA325	Horticulture Pathology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	PLBR326	Plant Breeding	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	ENLA327	English Language 3	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Fourth year/ First semester	TICU411	Tissue Culture	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	EVFR412	Evergreen Fruits	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	VESP413	Vegetable Seed Production	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	GRCU414	Greenhouse Cultivation	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	LADE415	Landscape Design	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	FAMA416	Farms Management	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	REPR417	Research Project	Basic	*	*	*	*	*	*	*	*	*	*	*	*

Fourth year/ Second semester	VICU421	Vitis Culture	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	DAPA422	Date Palm	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	BIOT423	Biotechnology	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	STHA424	Storage & Handling	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SOFF425	Soil Fertility and Fertilizers	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	ENLA426	English Language 4	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	SEMI427	Seminars	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	REPR428	Research Project	Basic	*	*	*	*	*	*	*	*	*	*	*	*

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

Course Description Form

1. Course Name:	
Machines equipment	
2. Course Code:	
MAEQ111	
3. Semester / Year:	
First semester/First 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 units (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	
Course Objectives	<ul style="list-style-type: none"> 1– Introducing, qualifying and training students theoretically and practically: 2– Introducing a student to general concepts and definitions in agricultural machinery and machinery 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	
Strategy	<ul style="list-style-type: none"> 1- Manage, exploit and use machinery in the agricultural field in a scientific and technical manner. 2- Maintenance and repair of all machines and machines.

- 3- Know the main factors that must be taken into consideration when choosing a machine.
- 4- Productivity for agricultural machinery 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	3+2	Show topic data word and Data Show	A historical overview of agricultural machinery and machinery.	Calculator + Lectures	Daily questions + tests
2	3+2	Show topic data word and Data Show	Basics of classification of agricultural machinery and equipment.	Calculator + Lectures	Daily questions + tests
3	3+2	Show topic data word and Data Show	Parts of the engine, functions of its parts, and identifying the types of combustion engines (examples of types of engines).	Calculator + Lectures	Daily questions + tests
4	3+2	Show topic data word and Data Show	Two-stroke and four-stroke diesel engines cycle.	Calculator + Lectures	Daily questions + tests
5	3+2	Show topic data word and Data Show	Power transmission devices.	Calculator + Lectures	Daily questions + tests
6	Semester exam	Show topic data word and Data Show	Timing devices.	Calculator + Lectures	Daily questions + tests
7	3+2	Show topic data word and Data Show	Lubrication and cooling systems in engines.	Calculator + Lectures	Daily questions + tests
8	3+2	Show topic data word and Data Show	Exam.	Calculator + Lectures	Daily questions + tests
9	3+2	Show topic data word and Data Show	Fuel devices: diesel and gasoline/spark ignition devices.	Calculator + Lectures	Daily questions + tests
10	3+2	Show topic data word and Data Show	Transmission devices: clutch - gearbox - differential	Calculator + Lectures	Daily questions + tests
11	3+2	Show topic data word and Data Show	And the methods used when transferring and transforming movement in agricultural machinery.	Calculator + Lectures	Daily questions + tests
12	3+2	Show topic data word and Data Show	Hydraulic devices and power take-off shaft.	Calculator + Lectures	Daily questions + tests
13	Semester exam	Show topic data word and Data Show	Soil tillage equipment	Calculator + Lectures	Daily questions + tests

14	3+2	Show topic data word and Data Show	Soil smoothing equipment.	Calculator + Lectures	Daily questions + tests
15	3+2	Show topic data word and Data Show	Leveling equipment	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)	Agricultural machinery and equipment - Yassin Hashim Al-Tahan, Muhammad Jassim Nimah, 2nd edition, revised and expanded - Mosul / University 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, USGS

Course Description Form

1. Course Name:					
plane Survey					
2. Course Code:					
PLSU112					
3. Semester / Year:					
first semester/first year					
4. Description Preparation Date:					
2/04/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(4) Hours, Number of units (2)					
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	knowledge	lecture	Daily and monthly exam, attendance and reports

		types, branches and how it develops			
2	5	Basic principles of space Units of measurement (its parts, multiples)	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	scale, (types, methods of application)	knowledge	lecture	Daily and monthly exam, attendance and reports
4	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
5	5	Longitudinal measurements and longitudinal measuring tools	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Scanning with tape	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	5	Cadastral errors, their types and sources	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Methods for measuring horizontal distances directly Knowing the obstacles that prevent measurement	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Methods of dropping columns	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Methods of indirect measurement through a device Settlement	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Distance whiskers method and shadow method	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Anvar method	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Settlement methods	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

14	5	Topographical area	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Application of measuring distances using theodolite	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

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 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:					
Principles of soil					
2. Course Code:					
PRSO113					
3. Semester / Year:					
First 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					
Course Objectives 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. 3- The importance and role of agricultural soil.					
9. Teaching and Learning Strategies					
Strategy		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 /	Lecture	Daily and monthly exam,

			soil formation factors and processes		attendance and reports
3	5	Cognitive	Main soil horizons / profile and soil pedon	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:	
Mathematics	
2. Course Code:	
MATH114	
3. Semester / Year:	
First 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)	
(2) Hours, 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	
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	
Strategy	<ul style="list-style-type: none"> • Encourage students to participate in the lesson by solving problems and interacting with the material 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 the 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 symmetry and symmetry.	Even and odd and conflicting functions, some common functions	Solving exercises on the board with participation of student.	Student discussion, board solution, daily exam and homework 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	Domain and range of	Solving	Student discussion, board

		the range of variability of a function and the set of values it takes.	functions mathematically	exercises on the board with participation of student.	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	KhanAcademy (https://www.khanacademy.org/)

Course Description Form

1. Course Name:					
Botany					
2. Course Code:					
BOTA115					
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: Ahmed Salahudin Bahauldin E-mail ahmedsalah1983@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	lecture	Daily and monthly exam, attendance and reports

			attitude		
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)	
Recommended books and references (scientific journals, reports...)	Mesopotamia Journal of Agriculture , Kirkuk University Journal for Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Model description of the decision

1. Name of Rapporteur					
Organic chemistry					
2. Symbol of decision					
ORCH116					
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 Scopas absorbers	Electronic references, Internet sites

Course Description Form

1. Course Name:					
Computer Application 1					
2. Course Code:					
COAP117					
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 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	Identifying the computer and its parts, turning the computer on/off	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	3	Computer parts, input/output units, memory, central processing unit	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	3	Central Processing Unit (C.P.U), main functions, motherboard (M/B) and	Knowledge	lecture	Daily and monthly exam, attendance and reports

		how to communicate with computer parts			
4	3	Input units (mouse/keyboard), output units (Monitor), memory (RAM, ROM)	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	3	Secondary memory, hard disk parts, how to store information on the disk, information about the disk	knowledge	lecture	Daily and monthly exam, attendance and reports
6	3	Introduction to the operating system (Windows), application software	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	3	Practical exam (1)	knowledge	lecture	Daily and monthly exam, attendance and reports
8	3	Windows - use the mouse, minimize/maximize windows - close windows, close windows, exit windows	knowledge	lecture	Daily and monthly exam, attendance and reports
9	3	Moving windows from one place to another, controlling window size (width/height), taskbar - date, time	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	MY COMPUTER	Knowledge,	lecture	Daily and monthly exam,

		Desktop, Create a shortcut icon for an application or file, Recycle Bin - Window Explorer, Format floppy disks	skill		attendance and reports
12	3	Install files - select/choose folder, create folder - rename, delete file/folder, copy file/folder, move file/folder	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	3	Screen settings - screen saver, change mouse cursor - double transfer speed control	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	3	Software Installation and Uninstallation, Disk Information, Help Request) HELP	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	3	Practical exam (1)	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 book if any)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Basic Principles of Computers/Magdi Abdullah Al-Wahdi/ Fourth Edition 2019
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:					
Arabic language					
2. Course Code:					
ARLA118					
3. Semester / Year:					
First 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 hour / 2 unit					
7. Course administrator's name (mention all, if more than one name)					
Name: Hemin Khorshid Saeed Email: hymnsaeed@uokirkuk.edu.iq					
8. Course Objectives					
Course Objectives			The course aims to know the parts of speech and what 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					
Strategy		Make the student able to know the Arabic language, which includes the most important topics that help the student to prepare accurate scientific research and help the student to know the common errors in official books			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		Sections of speech and what is related to it in terms of Tags			
		Sections nominal and verbal			

		sentences			
		Write the ha correctly			
		The difference between and dha			
		The differ between the f and marbuta tā'			
		Numbers in the Arabic language			
		punctuation ma			
		Correction incorrect words			
		Use movements correctly			
		Say and don't say			

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:					
Human rights and democracy					
2. Course Code:					
HURD119					
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 constitution 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 law. The 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 and the 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, concept, and manifestations	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	2	Different systems of election	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 Tohme
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:					
Principles of Field crops					
2. Course Code:					
PRFC121					
3. Semester / Year:					
first semester/ first 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 growth	Lecture Discussion	Daily attendance 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 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:	
Principles of Animal Production	
2. Course Code:	
PRAP122	
3. Semester / Year:	
Second Semester/ first year	
4. Description Preparation Date:	
2024-3-29	
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	
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	
Strategy	<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	3	Identifying the fields of cows/sheep /poultry/feed factory	Fields of cows/sheep /poultry/feed factory	Lecture, demonstrations and interactive discussion	Oral and written tests, daily and monthly practical tests, and scientific reports
2	3	Identify field operations involving cattle, sheep, and poultry	Field operations involving cattle, sheep, and poultry		
3	3	Learning about the process of milking cows – manual milking - mechanical milking – preparing cows for the milking process	The process of milking cows - manual milking - mechanical milking – preparing cows for the milking process		
4	3	Learn about breastfeeding young calves - breastfeeding/ artificial feeding	Breastfeeding young calves – breastfeeding/ artificial feeding		
5	3	Identify records - goals and benefits - types - and ways to preserve them	Records – goals and benefits - types – and ways to preserve them		
6	3	Learn about the latest livestock projects in Iraq	The latest Livestock projects in Iraq		
7	3		Exam		
8	3	Identify reproductive systems, methods of collecting sperm, and artificial insemination of cows	Reproductive system, methods of collecting sperm, and artificial insemination of cows		
9	3	Learn about some field operations related to sheep	Some field operations related to sheep		

		perations related to sheep			
10	3	Learn about hatching and how to select (choose) eggs for the hatching process	Hatching and how to select (choose) eggs for the hatching process		
11	3	Identifying feed materials (coarse feed – concentrated feed) - feed and feed supplements	feed materials (coarse feed – concentrated feed) - feed and feed supplements		
12	3	Learn how to graze and pasture	Graze and pasture		
13	3		Exam		
14	3	Identifying animal housing (types of housing) and general considerations for housing	Animal housing (types of housing) ; general considerations for housing		
15	3	Identifying horses and camels	Horses and camels		

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:	
Principles of Food Processing	
2. Course Code:	
PRFP123	
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)	
(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	
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	
Strategy	<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:					
Agricultural Economics					
2. Course Code:					
AGEC124					
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,

			agricultural work		attendance and 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 Al-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:					
Statistics					
2. Course Code:					
STAT125					
3. Semester / Year:					
second 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)					
Theory=(1) Hours & Practical = (3) Hours , Number of units (2)					
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	lecture	Exam

			representation		
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

13.Course Name:					
English language 1					
14.Course Code:					
ENLA126					
15.Semester / Year:					
second semester/first year					
16.Description Preparation Date:					
31/03/2024					
17.Available Attendance Forms:					
Mandatory					
18.Number of Credit Hours (Total) / Number of Units (Total)					
1 hours / Number of units (2)					
19.Course administrator's name (mention all, if more than one name)					
Name: Berevan Qader Omar Email: beree.omer@gmail.com					
20.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 .					
21.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.					
22. 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

23.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)

24.Learning and Teaching Resources

Required textbooks (curricular books, if any)	New headway plus (beginner student book) / written : 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 Application 2					
2. Course Code:					
COAP127					
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 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	Knowledge	lecture	Daily and monthly exam, attendance and reports

		before printing - printing the worksheet - specifying the text - font and size - underlining - changing letter case			
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 the frame	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
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	Knowledge	lecture	Daily and monthly exam,

		Layout - Header/Footer Insert and remove a page break	ge, skill		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)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Computer basics and office applications (Part second) Ziad Muhammad Aboudi, Ghassan Hamid Abdel Majeed, Mustafa Diao Al-Hassani
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:	
Engineering drawing	
2. Course Code:	
ENDR128	
3. Semester / Year:	
second 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 (1)	
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	
Course Objectives	<p>1. Introducing a student to general concepts and definitions in drawing. Engineering drawing is considered a language with rule 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	
Strategy	<p>Understand all the engineering properties of an entity or product in a clear and correct manner. Through education and full 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 practical observations	Engineering operations (dividing lines and erecting columns), direct drawings, connecting future lines, arcs, and tangents Examples and drawings	Lectures + applications and drawings	Daily questions + 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	Projective	Lectures +	Daily questions + tests

		and practical observations	drawing/drawing sections parallel to basic levels	applications and drawings	
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 – axonometric 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

11. 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

12. 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:					
microorganisms					
2. Course Code:					
MICR211					
3. Semester / Year:					
first 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 	The classification of microorganisms Nutritional requirements of bacteria	lecture	Daily and monthly exam, attendance and reports

		Know the physiology of bacteria			
3	5	Microbial control Sterilization and Disinfection	- Know the different types of microbial control How to use the sterilization techniques for medical equipments	lecture	Daily and monthly exam, attendance and 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,nutartion ,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	Factores 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 workss	Lecture working in lab as group	Daily and monthly exam, attendance and reports
14	5	Microorganism in food	Study types of microogransim with acts in food and benefits and dis advantages	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 environments and works	Lecture working in lab as group	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)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	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. 4- Richard A. Harvey, Cynthia Nau Cornelissen and Bruce D. Fisher. Microbiology. (Lippincott's Illustrated Reviews) 3 rd edition. 2014 5- Bailey and Scott's.(2014). Diagnostic microbiology.Elseiver,2014. 6-- Brock TD.Madigan M. Martinko J. et al.editors: Biology of microbiology. Upper Saddle River, NJ.2009. Prentice Hall
Recommended books and references (scientific journals, reports...)	Web sites of Microbiology

Course Description Form

1. Course Name:					
Garden Design					
2. Course Code:					
GADE212					
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: Assist. Prof. Dr. Mateen Yilmaz Izaldin Al-Bayati Email: uk_mateen@uokirkuk.edu.iq					
8. Course Objectives					
<p>The course aims to introduce the student to the gardens of different eras, the art of arranging them, and the special character of each era or country. There are systems and styles of arranging that express the historical extension of this art throughout ancient times and reflect the cultural development of those peoples.</p>					
9. Teaching and Learning Strategies					
<p>Garden-based learning strategies include programs, activities and projects that use the garden as a basis for integrated learning, both intra- and extra-disciplinary, through concrete, engaging and authentic experiences relating to people, whether children, youth, adults or communities, in an informal outdoor learning environment. Garden-based learning is an educational strategy that uses the garden as a teaching tool.</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	History of garden art - Gardens of the ancient world - Pharaonic gardens - Garden art in Mesopotamia - French - Greek - Roman - Medieval - Byzantine gardens	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Arab-Spanish	knowledge	lecture	Daily and monthly exam,

		Renaissance Gardens - Italian-Garden Art in Rome in the Renaissance.			attendance and reports
3	5	Basic planning systems - engineering system - natural system - mixed system - types of gardens	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Garden design theory - the beauty of nature - basic rules in garden design and planning	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
5	5	Garden components - site representation - movement and walkway network - walkway network in engineering - walkway network in the natural free system.	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Types of plants and their water needs - types, sizes and shapes of trees and shrubs	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
7	5	Division of trees and shrubs - division of trees based on size and shape - compositional formation of plantings	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Composition of gardens and parks - basic principles of space composition	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	The relationship of colors in gardens - light and shade in gardens - factors that affect the components	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

		and design of gardens.			
10	5	Special functional uses of parks - beautification of the surroundings of public buildings	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	The relationship of trees to buildings - landscaping the residential neighborhood	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Types of gardens - public gardens - water gardens - rock gardens - window and balcony gardens - sunken gardens - rose gardens - children's gardens	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Botanical gardens - rural gardens - zoological gardens - fish gardens - public gardens - succulent gardens - hospital gardens.	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Botanical references - trees - shrubs - fences - climbers and purlins - soil covers - perennial herbaceous plants - annual flowering plants - collection of winter and summer flowering bulbs and anemones	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Green landscapes	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)	Garden design
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

13.Course Name:					
Plant physiology					
14.Course Code:					
PLPH213					
15.Semester / Year:					
First semester / second year					
16.Description Preparation Date:					
31/03/2024					
17.Available Attendance Forms:					
Mandatory					
18.Number of Credit Hours (Total) / Number of Units (Total)					
(5) Hours, Number of units (3)					
19.Course administrator's name (mention all, if more than one name)					
Name: Mohammed Abdul Aziz Lateef email: mahammdazyz@uokirkuk.edu.iq					
20.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.					
21.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.					
22. 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

23.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%).

24.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 Sha 2012 Plant Physiology Hasan Jundiai 2003
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals

Course Description Form

1. Course Name:					
Principles of Plant Anatomy					
2. Course Code:					
PRPA214					
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: Assist. Prof. Dr. Mateen Yilmaz Izaldin Al-Bayati					
Email: uk_mateen@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to teach the student anatomy, its branches, and its relationship to other sciences such as plant diseases, physiology, environment, and others. The student also learns about the very precise specifications and precise classification of medicinal plants used in the manufacture of drugs, food, fibers, wood, etc.					
9. Teaching and Learning Strategies					
Teaching the student how to dissect a plant and explain its organs, tissues, and cells, the function of each of them, and their relationship to each other.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	The apparent appearance of the plant - the root system (its types, functions, and modifications)	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Stem (types, functions, mutations, distribution) - buds	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Papers (types, functions, Its modifications,	knowledge	lecture	Daily and monthly exam, attendance and reports

		distribution)			
4	5	Meristematic tissues (types and locations). Their presence in plants and their functions)	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
5	5	Permanent tissues (types, locations, and most important features)	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Secretory structures (types, functions and environmental importance)	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
7	5	Epidermal tissue (epidermal cells and stomata)	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Xylem and phloem - vascular bundle and its types	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	The anatomical structure of the root of a young monocot and dicotyledonous plant - The anatomical structure of the root of an old plant	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	The anatomical structure of the root of a young monocot and dicotyledonous plant - The anatomical structure of the stem of an old monocot and dicotyledonous plant	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Growth rings	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Sapwood and hardwood	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Vascular connection	Knowledge,	lecture	Daily and monthly exam,

		between the root and the stem	skill		attendance and reports
14	5	Vascular cambium (cambium cell structure, cambium activity, cork cambium and formation of prederm, protective tissue in plants, wound cork and lenticels)	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	The anatomical structure of a monocot leaf and a dicot leaf - defoliation	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)	Basics of plant Anatomy
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:					
Plant Genetic					
2. Course Code:					
PLGE215					
3. Semester / Year:					
First semester / Second year					
4. Description Preparation Date:					
01/04/2024					
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.ALI ASGHAR ZAINEL					
Email:aliznl@uokirkuk.edu.iq					
8. Course Objectives					
It Aims To Provide Knowledge And Skills Related To Plant Genetics, Teaching Students About The Of Genetics, Explain The Nature Of Genetic Evidence, Replication And Cloning Of Genetic Evidence, Genetic Expression And Mendelian Inheritance, Identify Chromosomes And Their Characteristics And Drawing A Genetic Map,learn about the concept of mutations and their types, learn about the concept of genetic engineering					
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 and skills	Intoduction to genetics and its relationship to other sciences,its importance in	lecture	Daily and monthly exam, attendance and reports

			agricultural fields and human service		
2	5	Knowledge and skills	The nature of the genetic material and chemical composition of DNA and RNA	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge and skills	Direct and indirect evidence that DNA is genetic material	Lecture and lab	Daily and monthly exam, attendance and reports
4	5	Knowledge and skills	Identify the devices used in genetic studies, study of cell structure	Lecture, lab and vedios	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Replication of genetic material	Lecture	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	Mitosis and meiosis, formation of mitates, succession of generations and double fertilization	Lecture, lab and vedios	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Chromosomes and their structure	Lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	Genetic linkage and crossing, gene expression	Lecture	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Mendelian inheritance, mendels first and second laws, solve exercises on mendels laws	Lecture and lab	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Deiations freom mendels laws	Lecture and lab	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Mutation and its types	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge	Cytoplasmic and	Lecture	Daily and monthly

		and skills	quitative genetic		exam, attendance and reports
13	5	Knowledge and skills	Inheritance of sex-linked traits	Lecture and vedios	Daily and monthly exam, attendance and reports
14	5	Knowledge and skills	New alliance	Lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	Protein sentences in RNA	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester endeavor is (40%), divided into (5) grades for daily preparation, participation, and submitting reports, (15) 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)	Prinsiples of plant gemetic, benyamin ESHO
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:					
Horticulture Entomology					
2. Course Code:					
HOEN216					
3. Semester / Year:					
First semester / second year					
4. Description Preparation Date:					
29/03/2024					
5. Available Attendance Forms:					
Mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(4) Hours, Number of units (2)					
7. Course administrator's name (mention all, if more than one name)					
Name: MOHAMMED ALBAYATI E-mail albayatiu@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the insect science of horticultural plants and the most important ways of combating them and classifying them within the animal kingdom					
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	General introduction	General introduction. Insect Site in Animal Kingdom	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
2	5	classification	General description of insects - classification	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
3	5	Body parts in insects	Body parts in insects	Lecture, presentations and	Verbal, editorial, daily and monthly tests and scientific reports

				interactive discussion	
4	5	head	The head and its accessories in insects	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
5	5	Abdomen	Abdomen in insects	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
6	5	Thorax	Thorax in Insect	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
7	5	Legs	Insect Leg types	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
8	5	Insects of fruit trees	Insects and types of fruit trees	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
9	5	First Exam	F. Exam	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
10	5	Apple insects	Apple family insects of all kinds	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
11	5	Citrus insects	Citrus tree insects and	Lecture, presentations	Verbal, editorial, daily and monthly tests and

			their types	and interactive discussion	scientific reports
12	5	Rosacea insects	Rosacea family insects and types	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
13	5	Olive Insects	Olive Insects Types	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
14	5	medicinal plant insects	aromatic medicinal plant insects	Lecture, presentations and interactive discussion	Verbal, editorial, daily and monthly tests and scientific reports
15	5	Aphids insects	Aphids and turbs are ornamental plant insects	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)	
Main references (sources)	Plant Entomology
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Computer Application/3					
2. Course Code:					
COAP217					
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	Knowledge	lecture	Daily and monthly exam, attendance and reports

		before printing - printing the worksheet - specifying the text - font and size - underlining - changing letter case			
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 the frame	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
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	Knowledge	lecture	Daily and monthly exam,

		Layout - Header/Footer Insert and remove a page break	ge, skill		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)	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	Computer basics and office applications (Part second) Ziad Muhammad Aboudi, Ghassan Hamid Abdel Majeed, Mustafa Diao Al-Hassani
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					
2. Course Code:					
ENLA218					
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)					
7. Course administrator's name (mention all, if more than one name)					
Name: Berevan Qader Omar Email: beree.omer@gmail.com					
8. Course Objectives					
<p>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.</p>					
9. Teaching and Learning Strategies					
<p>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.</p>					
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 quantity	Knowledge	lecture	Exercise
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:	
Baath party crim in Iraq	
2. Course Code:	
BAPC219	
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	
Course Objectives	<p>The course aims to introduce the student to the crimes committed by the Baath regime and the punishments.</p> <p>The decisions issued against the perpetrators of crimes, the types of international crimes and their impact on the citizen.</p> <p>. And mass graves.</p>
9. Teaching and Learning Strategies	
Strategy	<p>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.</p>

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 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 places of prisons detention of the Baath regime.	Psychological and social crimes and their effects		
8	2	exam			
9	2	Identifying military and radioactive contamination and mine explosions	Environmental crimes of Baath regime in Iraq	=	=
10	2	Recognizing the destruction of cities and villages (scorched earth policy)	Environmental crimes of Baath regime in Iraq	=	=
11	2	Learn about draining marshes razing palm groves,	Environmental crimes of Baath regime in Iraq	=	=

		trees and crops			
12	2	exam			
13	2	Identifying mass Graves	Mass grave crimes	=	=
14	2	Identification of genocide graves related to the Iran-Iraq War of 1980-1988 AD	Mass grave crimes	=	=
15	2	Identifying the genocidal graves of 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:					
Agricultural Extension					
2. Course Code:					
AGEX2110					
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:					
Plant Nutrition					
2. Course Code:					
PLNU221					
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: Asst.Prof. Dr. Ali Mohammed NOORI Email: aloky1515@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to the characteristics of plant nutrients and their relationship to the physiological and structural role of plants.					
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	Definition of plant nutrition and plant content of elements	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Soil as a medium for nutrients	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Absorption of nutrients and theories of absorption	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Representation of elements and their transport within the plant	knowledge	lecture	Daily and monthly exam, attendance and reports
5	5	Representation of elements and their transport within the plant	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Representation of elements and their transport within the plant	knowledge	lecture	Daily and monthly exam, attendance and reports
7	5	Water, plant nutrition, and the relationship between nutrition and yield	knowledge	lecture	Daily and monthly exam, attendance and reports

8	5	Water, plant nutrition, and the relationship between nutrition and yield	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Salinity and plant nutrition	knowledge	lecture	Daily and monthly exam, attendance and reports
10	5	Nutrition and plant diseases	knowledge	lecture	Daily and monthly exam, attendance and reports
11	5	Nutrition and gut diseases	knowledge	lecture	Daily and monthly exam, attendance and reports
12	5	Symptoms of element deficiency	knowledge	lecture	Daily and monthly exam, attendance and reports
13	5	Pollution and plant nutrition	knowledge	lecture	Daily and monthly exam, attendance and reports
14	5	Soilless agriculture	knowledge	lecture	Daily and monthly exam, attendance and reports
15	5	How to prepare nutritional solutions	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 Nutrition
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. Name of Rapporteur					
Biochemistry					
2. Decision code					
BLOC222					
3. Chapter/year					
Second semester / Second 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 units (3)					
7. Name of the course administrator (if more than one name is mentioned)					
Name: Mohammed Abdul Aziz Lateef email: mahammdazyz@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	Knowledge	5	3

		monosaccharides - the ring structure of sugars			
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 and reports	Lecture	Fat – define its importance – fatty acids its sections – their composition – their interactions – geometric similarities to fatty acids	Knowledge	5	7
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 –	Knowledge and skill	5	9

		the shape of it			
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	Knowledge and skill	5	14

		reaction			
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 sites		

Course Description Form

1. Course Name:					
Plant Ecology					
2. Course Code:					
PLEC223					
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: Assist. Prof. Dr. Mateen Yilmaz Izaldin Al-Bayati					
Email: uk_mateen@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to environmental science: its concept, what it studies, its importance at the present time, and its relationship with other sciences. He will know why there is concern for the environment and the necessity of preserving it. In conjunction with this, he will become well acquainted with the meaning and concept of the environment, its components, and its divisions. He learns about the environment of groups, what is meant by it, its concept, sizes and estimates, and the role of life indicators, such as births, deaths and migration, in the sizes of groups, population density, carrying capacity, spatial distribution, age structure of groups, their growth, fluctuations, areas of endemism, and the environmental methods used. To survey living communities.					
9. Teaching and Learning Strategies					
Teaching the student about the nature of the environment surrounding living organisms, especially plants, and their relationship with the organisms surrounding them, as well as introducing the student to the sections that make up living organisms within the ecosystem as producer organisms, consumer organisms, and decomposer organisms.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Historical overview - Definition of ecology - Departments of ecology - Ecosystem.	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Light rays - types -	knowledge	lecture	Daily and monthly exam,

		wavelength			attendance and reports
3	5	Length of the photoperiod - intensity of lighting - effect of day length on plants.	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	The importance of lighting for vital activities - Characteristics of shade plants	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
5	5	Optical minimum – Reasons for reducing light rays.	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Heat - heat flow - temperature changes - thermal inversion - the effect of temperatures on plants.	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
7	5	Actual temperature value - plants adapt to low and high temperatures	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	The effect of temperature on the spread of plants.	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Water as an environmental factor in plant life - pictures of water in nature and how plants are affected by it.	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Divide plants according to their water needs	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	The effect of rain on the spread of plants.	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Winds, their types - air masses and fronts -	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

		the effect of wind on plants			
13	5	Atmospheric pressure – factors that affect atmospheric pressure	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	5	Atmospheric pressure distribution and air circulation – the main ranges of atmospheric pressure.	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Ecosystems - tropical forests - savannahs - deserts - plains - deciduous forests - cone forests - marshes.	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)	Environmental science: Dr. Alia Hatoug-Boran and Muhammad Hamdan Abu Dayyeh
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:					
Organic Culture					
2. Course Code:					
ORCU224					
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: Assist. Prof. Dr. Mateen Yilmaz Izaldin Al-Bayati					
Email: uk_mateen@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to teach the student about what organic agriculture is and the reason for the global trend of this agriculture, with an explanation of who this agriculture consists of, what its sources are, and how it is prepared by humans.					
9. Teaching and Learning Strategies					
Teaching the student how to produce food of good quality value and high health specifications, in addition to the production of fiber, through optimal exploitation of the soil, while employing plant and animal waste in the process of recycling mineral elements, and maintaining the structure of the soil completely away from the use of chemically manufactured pesticides and fertilizers.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Historical overview - Harmful effects of using chemical fertilizers	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	The harms of nitrogen fertilizers - the harms of phosphate fertilizers - the harms of heavy metals	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Organic matter	knowledge	lecture	Daily and monthly exam, attendance and reports

4	5	Chemical composition of organic matter - humus formation - humus composition	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
5	5	Decomposition of organic matter	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Carbon - assimilation of nitrogen – Phosphorus representation – representation Potassium	Knowledge and skills	lecture	Daily and monthly exam, attendance and reports
7	5	Changes that occur during the decomposition of organic matter	knowledge	lecture	Daily and monthly exam, attendance and reports
8	5	Organisms active in the decomposition of organic matter	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	The effect of organic matter on the physical, chemical and biological characteristics of the soil	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	5	Organic fertilizers - their types - traditional organic fertilizers - animal organic fertilizers	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	5	Unconventional organic fertilizers - green fertilizers - industrial organic fertilizers	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	5	Bio fertilizers	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	5	Symbiotic biofertilizers - biological nitrogen	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports

		fixation - stages of bacterial nodule formation - mechanics of atmospheric nitrogen fixation			
14	5	Principles and foundations of transition to organic agriculture	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	5	Success factors in switching to organic agriculture	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)	Basics in organic agriculture - written and prepared by Dr. Muwafaq Mazban and Dr. Omar Hashem - College of Agriculture / Anbar University
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:					
Nurseries and Propagation					
2. Course Code:					
NUPR225					
3. Semester / Year:					
Second semester/2 th year					
4. Description Preparation Date:					
2024/4/1					
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. Suzan Ali Hussein Email: suzanali8@uokirkuk.edu.iq					
8. Course Objectives					
<ul style="list-style-type: none"> • Teaching students the basics of science related to growth and reproductive systems in horticultural plants, how to separate and plant parts, create and sterilize agricultural media, in addition sterilizing soil, knowledge of the stages of plant growth, and transporting plants within protected facilities. 					
9. Teaching and Learning Strategies					
The student must be familiar with the horticultural sciences of fruits, ornamentals, and vegetables, methods of propagating them, improving their production, caring for them, and finding the best ways to preserve their varieties and types.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	A historical overview of the emergence and development of propagation of plants	knowledge	lecture	Daily and monthly exams, attendance and reports
2	5	The importance of	knowledge	lecture	Daily and monthly exams

		of study reproductive science			attendance and reports
3	5	Sexual propagation seeds	knowledge	lecture	Daily and monthly ex attendance and reports
4	5	Treatments th encourage se germination	knowledge	lecture	Daily and monthly exam attendance and reports
5	5	Cellular basis seed propagati	knowledge	lecture	Daily and monthly exam attendance and reports
6	5	Vegetative asexual propagation	knowledge	lecture	Daily and monthly exam attendance and reports
7	5	Methods propagating plants vegetatively	knowledge	lecture	Daily and monthly exam attendance and reports
8	5	Physiological a anatomical foundations vegetative propagation	knowledge	lecture	Daily and monthly exam attendance and reports
9	5	Multiplication specialized part	knowledge	lecture	Daily and monthly exam attendance and reports
10	5	Methods cultivation various pla parts (tube crabs, purlins)	knowledge	lecture	Daily and monthly exam attendance and reports
11	5	Propagate w pens a treatments th increase t rooting rate	knowledge	lecture	Daily and monthly exam attendance and reports
12	5	Increase vaccination	knowledge	lecture	Daily and monthly exam attendance and reports
13	5	Reproduction structure	knowledge	lecture	Daily and monthly exam attendance and reports

14	5	Micropropagation of plant advantages and disadvantages	knowledge	lecture	Daily and monthly exam attendance and reports
15	5	A visit to tissue culture laboratory	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)	Nurseries and Propagation
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:					
Weeds control					
2. Course Code:					
WECO226					
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: Asst. Prof. Dr. Hussein Abdullah Ahmed/ Email: husseinabdullah@uokirkuk.edu.iq					
8. Course Objectives					
Weed science and its control methods aim to provide students with practical and theoretical information about the most important weeds prevalent in Iraq and around the world, their damage to crop plants, and the possibility of adopting modern methods to combat jungles. This involves studying the most widespread weeds, conducting surveys and diagnoses of these unwanted plants. It also includes categorizing jungle plants according to their life cycle, in addition to understanding jungle propagation methods and scientific techniques useful in limiting their spread. Furthermore, it involves studying the impact of jungles on economic crops quantitatively and qualitatively, as well as understanding the methods employed in manual, biological, and chemical jungle control. Other key objectives include familiarizing students with the dangers of jungle presence alongside main crops and the pesticides used in combating them.					
9. Teaching and Learning Strategies					
Empowering students to enhance cognitive objectives by introducing them to the concept of weed plants and educating them about the most prevalent weeds in fields according to their life cycle and propagation nature. Teaching students how to differentiate between weed types and the most effective methods to mitigate their impact on crop productivity. Ensuring their good understanding of scientific methods employed in jungle damage reduction. Additionally, educating students on environmental factors influencing weeds, how to resist harsh environmental conditions, and teaching them how to manage fields. Introducing students to the characteristics, seeds, damages, benefits, and spread methods of weeds.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge, skill and attitude	Definition of weeds and their importance in combating them, along with a historical	lecture	Daily and monthly exam, attendance and reports

			overview of weed control.		
2	5	Knowledge, skill and attitude	Features of weed plants and their seeds.	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge, skill and attitude	Damages caused by weeds and their benefits.	lecture	Daily and monthly exam, attendance and reports
4	5	Knowledge, skill and attitude	Definition of weeds and their importance in combating them, along with a historical overview of weed control.	lecture	Daily and monthly exam, attendance and reports
5	5	Knowledge, skill and attitude	Classification and groups of weeds.	lecture	Daily and monthly exam, attendance and reports
6	5	Knowledge, skill and attitude	Characteristics of weeds. Allelopathy.	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge, skill and attitude	Propagation of weeds. Methods of weed control: mechanical methods, manual pulling, and hoeing with hoes.	lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge, skill and attitude	Methods of weed classification.	lecture	Daily and monthly exam, attendance and reports
9	5	Knowledge, skill and attitude	Preventive measures to reduce the damage caused by weeds. Mechanisms for the retention and absorption of pesticides by leaves. Chemical variations of pesticides in plants.	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge, skill and attitude	Weed and soil pesticides.	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge, skill and attitude	Factors determining appropriate times for weed control.	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge, skill and attitude	Spraying equipment.	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge, skill and attitude	Classification and groups of weeds.	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge, skill and attitude	Characteristics of weeds. Allelopathy.	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge, skill and attitude	Propagation of weeds. Methods of weed control: mechanical methods, manual pulling, and	lecture	Daily and monthly exam, attendance and reports

		hoeing with hoes.		
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)		Weed and its Control Methods / Dr. Yas Amin Mohammed The Science of weeds - Dr. Baqir Al-Jubouri Weed and Fundamentals of Control - Dr. Ghanim Wafaaq Al-Jalbi Weed and its Control Methods - Dr. Salem Hamadi Antar		
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:					
Computer Application/4					
2. Course Code:					
COAP227					
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 -	Knowledge	lecture	Daily and monthly exam, attendance and reports

		Open a stock presentation			
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 organization chart slide - Layout (chart) - Create image and text slide - Create a blank slide - Change the slide type	Knowledge	lecture	Daily and monthly exam, attendance and 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	knowledge	lecture	Daily and monthly exam, attendance and reports

		Internet - Its definition, origin and development - How to connect to the Internet - Internet addresses and URL concepts - Internet-specific terminology			
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 -	knowledge	lecture	Daily and monthly exam, attendance and reports

		<p>reading a message - reading a message containing an attachment - replying to the message - passing a message to another user</p>			
12	3	<p>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</p>	knowledge	lecture	Daily and monthly exam, attendance and reports
13	3	<p>Microsoft Access - What is a database - Definition of Microsoft Access - Terms specific to databases - Running the Microsoft program</p>	knowledge	lecture	Daily and monthly exam, attendance and reports
14	3	<p>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</p>	knowledge	lecture	Daily and monthly exam, attendance and reports

15	3	Practical exam, lecture exam	knowledge	lecture	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)	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 Diao Al-Hassani
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:					
Freedom and Democracy					
2. Course Code:					
FRDE228					
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)					
(1) 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					
Know the importance of studying freedom and democracy.					
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	1	The concept of freedom, the concept of anarchy, the concept of democracy, the historical	Knowledge	lecture	Daily and monthly exam, attendance and reports
2	1	Forms of the system: indirect	Knowledge	lecture	Daily and monthly exam, attendance and reports
3	1	Civil, society,	Knowledge	lecture	Daily and monthly exam, attendance and reports
4	1	The concept of freedom	Knowledge, skills and attitudes	lecture	Daily and monthly exam, attendance and reports
5	1	The concept of anarchism	knowledge	lecture	Daily and monthly exam, attendance and reports

6	1	The basic conditions of a democratic system and its characteristics	Knowledge, skill and attitude	lecture	Daily and monthly exam, attendance and reports
7	1	Features of the democratic system	knowledge	lecture	Daily and monthly exam, attendance and reports
8	1	development of the concept of democracy in the Mesopotamian civilization	knowledge	lecture	Daily and monthly exam, attendance and reports
9	1	The pillars of democracy, the basic conditions of the democratic system	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
10	1	Features of the democratic system, types democracy	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
11	1	democracy, democracy, concept, and manifestations	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
12	1	Different systems of election	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
13	1	Democracy applications	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
14	1	democratic values and functions	Knowledge, skill	lecture	Daily and monthly exam, attendance and reports
15	1	The report on human rights in Islam comprehended and surpassed all hypothetical	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 Tohme
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including
Electronic References, Websites	International journals .

Course Description Form

1. Course Name:					
Deciduous Fruits 1					
2. Course Code:					
DEFR311					
3. Semester / Year:					
First course /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: Assist. Prof. Dr. Raad Ahmed Medan Email: Raad132@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to prepare and graduate students with a distinct scientific and practical vision to improve the agricultural situation in Iraq and to provide the ministries related to agriculture with trained scientific human cadres to lead agricultural and horticultural work in state institutions. Providing an agricultural engineering staff specialized in planting and establishing orchards can create job opportunities in the private agricultural sector.					
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 and activate the thinking strategy according to the student's ability, displaying illustrative pictures of various deciduous fruits, and learning through applied field practices.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and skills	Economic importance of fruit trees	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge and skills	Factors affecting fruit growth and production	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge and skills	Multiplication of fruit trees	lecture	Daily and monthly exam, attendance and reports

4	5	Knowledge and skills	Origins of fruit trees	lecture	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Division of fruit trees	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	Comfort and stillness	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Factors affecting the development of flower buds	lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	Planning and implementing the establishment of orchards	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Agree and disagree	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Fruit setting and growth	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Soften the fruits	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	Flowers falling	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge and skills	Fruit ripening	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge and skills	Methods of harvesting and packing fruits	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	Pruning fruit trees	Field scenes at the agricultural research and experiments station	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)	Deciduous Fruit Production / Written by Jabber Hassan Al Nuaimi, Youssef Hanna Deciduous Fruit Technology, Jassim Muhammad Alwan
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:					
Vegetables production1					
2. Course Code:					
VEPR312					
3. Semester / Year:					
First course / Third year					
4. Description Preparation Date:					
01/04/2024					
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:			Email:aliznl@uokirkuk.edu.iq		
8. Course Objectives					
<p>Teaching students the basics of vegetable production</p> <p>Teaching students to produce and grow winter vegetable seedlings</p> <p>Teaching students the botanical description of winter vegetable crops</p> <p>Teaching students service operations for winter vegetable crops</p>					
9. Teaching and Learning Strategies					
<p>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</p> <p>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</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and skills	Introduction to vegetable crops Problems that	lecture	Daily and monthly exam, attendance and reports

			hinder vegetable production in the world and Iraq		
2	5	Knowledge and skills	Methods of classifying vegetable crops and their divisions	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge and skills	Environmental factors include temperature, light, humidity and soil factors	lecture	Daily and monthly exam, attendance and reports
4	5	Knowledge and skills	Agricultural facilities used in the production of vegetable crops	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Seedling production and acclimatization	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	Exam first month		
7	5	Knowledge and skills	Study of vegetable crops belonging to the cruciferous family, such as cabbage and cauliflower	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports

8	5	Knowledge and skills	Study of vegetable crops belonging to the cruciferous family, such as Turnip, Radish and Cress	Lecture and fields	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Study of vegetable crops belonging to the Legumes family, such as broad beans and peas	Lecture and field	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Study of vegetable crops belonging to the bulbous family Such as onion garlic and leek	Laboratory use	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Study of vegetable crops belonging to the Asteraceae family as Lacttuce and Jerusalem artichoke	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	Study of vegetable crops belonging to the Chenopodiaceae family such as Beets•Boiling	Lecture and field	Daily and monthly exam, attendance and reports

			Spinach		
13	5	Knowledge and skills	Study of vegetable crops belonging to the Apiaceae family such as carrot, celery and parsley	Lecture and field	Daily and monthly exam, attendance and reports
14	5	Knowledge and skills	Exam second month	Lecture +Field	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	Study of some vegetable crops that may spread in Iraq such as broccoli , Rocket and Artichoke	lecture	Daily and monthly exam, attendance and reports

11.Course Evaluation

The grade for the semester endeavor is (40%), divided into (5) grades for daily preparation, participation, and submitting reports, (15) 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)	Vegetables production. Adnan Naser. 1989
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:					
Floriculture I					
2. Course Code:					
FLOR313					
3. Semester / Year:					
First semester/3 rd stage					
4. Description Preparation Date:					
29/3/2024					
5. Available Attendance Forms:					
mandatory					
6. Number of Credit Hours / Number of Units					
(4 Hours), 1 hr. for the theoretical and 3 hrs. for the practical part / (2 Units)					
7. Course administrator's name					
Name: Prof. Dr. Kefaia Gahzi saeed Email: : dr.kefaigahzi@uokirkuk.edu.iq					
8. Course Objectives					
Course Objectives	1-Introduction to ornamental science and importance of various ornamental plants and their divisions and uses in landscaping. 2-Recognize the most important problems facing the process of cultivation and production of ornamental plants and the factors influencing their growth and proliferation. 3- Recognize the methods of propagating various ornamental plants and the importance of greenhouses in ornamental nurseries and protecting plants.				
9. Teaching and Learning Strategies					
Strategy	1- Cognitive objectives: academic aspects, practical applications, use of scientific references from books and modern means of illustration, field knowledge. 2- Skills objectives specific about the course: 3- Emotional and value-based goals: by preparing a thinking and careful student in his specialty and encouraging him to read the field and crops in the field objectively and accurately and the ability to adopt and accumulate the latest information and lead the middle cadres in production in the field of work. 4- General and qualifying skills related to employability and personal development.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Cognitive	Introduction to ornamental science, the importance of various ornamental plants, their plant	Lecture + practical	Daily and monthly exam, attendance and reports

			divisions, and their uses in garden architecture.		
2nd	5	Cognitive	definition of different ornamental plants importance, divisions, morphology and recognizing the Annual flowers	Lecture + practical	Daily and monthly exam, attendance and reports
3rd	5	Cognitive	Definition of its types, methods of propagation and propagation facilities in ornamental nurseries (wooden canopy, greenhouses, plastic houses) and their conditions	Lecture + practical	Daily and monthly exam, attendance and reports
4th	5	Cognitive, skillful and emotional	Introduction to the types of commercial ornamental plants, their economic importance, and methods of storing, marketing, and coordinating them.	Lecture + practical	Daily and monthly exam, attendance and reports
5th	5	Cognitive	Studying the environmental factors affecting the growth and flowering of plants (light, temperature, humidity, and	Lecture + practical	Daily and monthly exam, attendance and reports

			water needs of plants)		
6th	5	Cognitive, skillful and emotional	Study of commercial cut flowers and their economic and coordination importance (solutions for preserving flowers, ways to preserve them, prolong their flower life, and store and market flowers.	Lecture + practical	Daily and monthly exam, attendance and reports
7th	5	Cognitive	First month exam	lecture	Daily and monthly exam, attendance and reports
8th	5	Cognitive	Study of the most important specially bred ornamental plants: roses and roses. Their economic and coordination importance, methods of raising, harvesting, and propagating them, and the environmental factors affecting their growth, service operations, and maintenance.	A field visit to the vegetable seed production fields	Daily and monthly exam, attendance and reports
9th	5	Cognitive, skillful and emotional	Study of the most important ornamental plants of special breeding, Cloves, Claudius. Their economic and coordination	Lecture + practical	Daily and monthly exam, attendance and reports

			importance, methods of raising, harvesting, and propagating them and the environmental factors affecting their growth, service operations, and maintenance.		
10th	5	Cognitive, skill	Study of the chrysanthemum plant, the most important problems of raising the chrysanthemum, methods of caring for it, how to produce its flowers, and service and maintenance processes.	Lecture + practical	Daily and monthly exam, attendance and reports
11th	5	Cognitive, skill	Studying indoor landscaping plants (interior landscaping plants - shade) and the environmental factors affecting the success of their growth and methods of propagation...and knowing the most important physiological problems they face and the processes that must be taken into account in	Lecture + practical	Daily and monthly exam, attendance and reports

			homes to care for them.		
12th	5	Cognitive, skill	Study of different flowering ornamental bulbs: the physiological definition of bulbs and their divisions according to their modified forms, botanical division, and the most important special parameters before and after their extraction, storage, and agricultural service operations.	Lecture + practical	Daily and monthly exam, attendance and reports
13th	5	Cognitive, skill	Green areas and soil covers: their main features and functions, sustaining them, and agricultural service operations (mowing, fertilizing, irrigation, pest control)	lecture	Daily and monthly exam, attendance and reports
14th	5	Cognitive, skill	Luxury, its most important advantages and disadvantages, and the method of cultivation.	Lecture + practical	Daily and monthly exam, attendance and reports
15th	5	Cognitive, skill	Second month exam	Using laboratory	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	Lectures prepared by the teacher based on relevant books and references.
Main references (sources)	<ul style="list-style-type: none">• Decorations: Dr. Salem Sultan and Dr. Muhammad Dawoud Salim and Dr. Talal Mahmoud Al-Chalabi / 1992.• Ornamental and garden engineering: Dr. Mohsen Khalaf Mohsen + I Sami Karim Chalabi/1989.• Ornamental plants in Iraq: Dr. Sami Karim Chalabi: Wa.M. Nisreen Khalil Al-Khayyat / 2013• Ornamental plants: Dr. Ahmed Tawajen• Interior landscaping plants• Ornamental flowering bulbs• Herbaceous flowers: A. m. Nisreen Khalil Abdel Aziz Al-Khayyat / 2018
Recommended books and references	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus, google, and youtube.

Course Description Form

1. Course Name:					
Experimental Design and Analysis					
2. Course Code:					
EXDA314					
3. Semester / Year:					
First semester/3th year					
4. Description Preparation Date:					
2024/4/1					
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. Suzan Ali Hussein Email: suzanali8@uokirkuk.edu.iq					
8. Course Objectives					
Teaching the student the basic concepts and rules for designing and analyzing experiments, how to design the experiment, the types of agricultural experiments and their analysis, and obtain their preliminary and final results and appropriate recommendations according to their findings.					
9. Teaching and Learning Strategies					
The student must be familiar with conducting field design, distributing parameters replicates and experimental units, and how to read results based on statistical analysis tables at the end of statistics books and design books, and reach a final result and recommendation for the experiment or study.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	General review statistics	knowledge	lecture	Daily and monthly exam attendance and reports
2	5	Measures central	knowledge	lecture	Daily and monthly exam attendance and reports

		tendency (mean and median)			
3	5	Measures of dispersion and dissimilarity (standard deviation)	knowledge	lecture	Daily and monthly exam attendance and reports
4	5	Basic rules of designing and analyzing experiments	knowledge	lecture	Daily and monthly exam attendance and reports
5	5	Definitions and concepts of terms in the design and analysis of experiments	knowledge	lecture	Daily and monthly exam attendance and reports
6	5	Completely randomized design	knowledge	lecture	Daily and monthly exam attendance and reports
7	5	Comparison of means (least significant difference test)	knowledge	lecture	Daily and monthly exam attendance and reports
8	5	Duncan test	knowledge	lecture	Daily and monthly exam attendance and reports
9	5	Randomized complete block design	knowledge	lecture	Daily and monthly exam attendance and reports
10	5	Latin square design	knowledge	lecture	Daily and monthly exam attendance and reports
11	5	Factorial experiments with two factors	knowledge	lecture	Daily and monthly exam attendance and reports
12	5	Split plot design	knowledge	lecture	Daily and monthly exam attendance and reports
13	5	Split plot design	knowledge	lecture	Daily and monthly exam attendance and reports

		design			attendance and reports
14	5	Correlation and simple linear regression	knowledge	lecture	Daily and monthly exam attendance and reports
15	5	Splinter design examples	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 relevant books and references.
Main references (sources)	Design and analysis of agricultural experiments... Dr. Khasha Mahmoud Al-Ra and Dr. Abdulaziz Muhammad Khalaf Al 2000
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:					
Plant Growth Regulators					
2. Course Code:					
PLGR315					
3. Semester / Year:					
First semester/3 ^{ed} 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: Asst.Prof. Dr. Ali Mohammed NOORI Email: aloky1515@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	Abscisic 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	
Medicinal & aromatic plants	
2. Course Code	
MEAP316	
3. Semester / Year	
First semester/3 ^{ed} year	
4. The history of preparation of this description	
March2024	
5. Available Attendance Forms	
Attendance is mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5Hours/ 3 unit	
7. Course administrator's name (if more than one name)	
Name: Dr. Saad AbdulMageed Waheeb Email : sadoori@uokirkuk.edu.iq	
8. Course Objectives	
<p>A- Cognitive objectives</p> <p>A1- Enabling students to know and understand the basics of medicinal and aromatic botany.</p> <p>A2- Enabling students to know and understand the methods of production and propagation of economic medicinal and aromatic plants common in Iraq.</p> <p>A3- Enabling students to know and understand modern methods in extracting and estimating active substances.</p> <p>A4- Enabling students to identify the active substances of most medicinal and aromatic plants, which are used as a drug for some diseases.</p> <p>A5- Enabling students to know the methods of collecting and drying medicinal and aromatic plants.</p>	<p>- Course skills objectives.</p> <p>–1Training students to obtain the scientific skills necessary to work in the field of medicinal and aromatic plants.</p> <p>B2 - Training students to obtain practical skills in the use of modern laboratory equipment for the extraction and determination of active substances of medicinal and aromatic plants.</p> <p>B3 - Providing students with practical field skills, which are represented in planting seeds of medicinal and aromatic plants.</p> <p>B4 - Training students to</p>

acquire work skills in the specialty of medicinal and aromatic plants such as accuracy of work and responsibility.

B5- Training students to distinguish the seeds of medicinal and aromatic plants because the error is out of the question.

9. Teaching and Learning Strategies

- Lecturing.**
- Using the method of dialogue and discussion with students to deliver theoretical information to the student.**
- Apply some theoretical vocabulary practically in the field.**
- The use of modern laboratories.**
- Use the presentation method to give lectures.**
- Assigning students to prepare scientific reports on the specialization.**

Strategy

1. Course Structure

Evaluation method	Method of education	Unit / Subject Name	Required Learning Outcomes	Hours	The week
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the field	Introduction to the history of the development of medicinal and aromatic plants	A brief history of medicinal and aromatic plants in the world and the Arab world	5	1
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	Medicinal and aromatic plants	An introductory study of medicinal plants	5	2
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The importance of medicinal plants economically and therapeutically	Introducing the student to the importance of medicinal and aromatic plants economically and therapeutically	5	3
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The reality of medicinal and aromatic plants in Iraq	Study of the reality of medicinal and aromatic plants in Iraq	5	4
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The importance of medicinal and aromatic plants	Introducing the student to the importance of medicinal plants in preparing medicine and medical and aromatic supplies.	5	5
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	Division and classification of medicinal and aromatic plants	Introducing the student to the divisions and classification of medicinal and aromatic plants	5	6
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	Secondary compounds in medicinal and aromatic plants	Comprehensive study of secondary compounds in medicinal and aromatic plants	5	7
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, lab, practical in the fields	General methods of extracting active substances for medicinal and aromatic plants	Introducing the student to the general methods of extracting the active substances of medicinal and aromatic plants	5	8
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	Factors affecting the growth and productivity of medicinal and aromatic plants	A comprehensive study of the factors affecting the growth and productivity of medicinal and aromatic plants	5	9
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	Cultivation of medicinal and aromatic plants	Teaching the student the methods of growing and propagating medicinal and aromatic plants	5	10
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	Harvesting, drying and storage of medicinal and aromatic plants	Study of different methods of harvesting, drying and storing medicinal plants	5	11
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The use of medicinal plants as a treatment	Teaching the student how to use medicinal plants as a treatment	5	12
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The use of medicinal plants as a treatment	Complement How to Use Medicinal Plants as Treatment	5	13
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The most important medicinal and aromatic plants common in Iraq	Identify the most important medicinal and aromatic plants common in Iraq	5	14
Quick and monthly exams, classroom activity and reports	Lecture, discussion, reports, practical in the fields	The most important medicinal and aromatic plants common in Iraq	Complement to identify the most important medicinal and aromatic plants common in Iraq	5	15

10. Course Evaluation

- **Daily quick exams (Kozat).**
- **Monthly exams (two or more).**
- **Evaluation of students' classroom activity.**
- **Assessments on writing research, scientific reports and homework.**

Theoretical final exam	Practical final exam	Theoretical daily tests	Practical Semester Exams	Theoretical Semester Tests
%40	%20	%5	%10	%25

11. Learning and Teaching Resources

Medicinal and aromatic plants / Prof. Ammar Al-Atrakji and others Medicinal plants / Dr. Ali Hammoud Al-Saadi and others	Required textbooks (methodology if any)
A series of dictionaries of medicinal and aromatic plants by Michel Hayek	Main references (sources)
World Medicinal Plants / Dr. Ali Mansour Hamza	Recommended books and references (scientific journals, reports...)
https://www.aegegypt.com/Uploaded/Pdf/moasfat_nabatat_tibia.pdf https://acsad.org/%D8%A3%D8%B7%D9%84%D8%B3-%D8%A7%D9%84%D9%86%D8%A8%D8%A7%D8%AA%D8%A7%D8%AA-%D8%A7%D9%84%D8%B7%D8%A8%D9%8A%D8%A9-%D9%88-%D8%A7%D9%84%D8%B9%D8%B7%D8%B1%D9%8A%D8%A9/	Electronic References, Websites

Course Description Form

1. Course Name:	
Irrigation and Drainage	
2. Course Code:	
IRDR317	
3. Semester / Year:	
First semester/third 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	
Course Objectives	<p>1- Preparing students who have the ability to use modern puncture methods and describe these methods accurately with the possibility of us them within Iraqi soil and integrating these methods with irrigation network and getting rid of excess water.</p> <p>2- Entering the agricultural sector with distinguished efficiency through participation. In puncture projects, modern irrigation technologies, and the use of the best methods in order to reduce water use within agricultural lands, reduce the risk of salt and desertification, and remove excess water</p>
9. Teaching and Learning Strategies	
Strategy	<p>1- Enabling the student to learn how to evaluate and characterize modern puncture methods</p> <p>2- - Enabling the student to know how to use digging nets for soil and to obtain the best methods and exploit them for agriculture</p>

- 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 the movement of water towards the sewers
- 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
1	3+2	Show topic data word and Data Show	The concept of puncture, justifications for establishing punctures, the relationship of puncture to plant growth and productivity.	Calculator + Lectures	Daily questions + tests
2	3+2	Show topic data word and Data Show	Physical soil properties related to drilling.	Calculator + Lectures	Daily questions + tests
3	3+2	Show topic data word and Data Show	The hydrological cycle and the location of irrigation and drainage.	Calculator + Lectures	Daily questions + tests
4	3+2	Show topic data word and Data Show	Water flow in the soil, its forms, and its relationship to the concept of drainage, flow analysis	Calculator + Lectures	Daily questions + tests
5	3+2	Show topic data word and Data Show	Puncture and soil salinity, washing requirements and salt balance.	Calculator + Lectures	Daily questions + tests
6	Semester exam	Show topic data word and Data Show	Investigations required to establish trocars, exploratory and design investigations.	Calculator + Lectures	Daily questions + tests
7	3+2	Show topic data word and Data Show	Measurement of saturated water conductivity above and below the groundwater level.	Calculator + Lectures	Daily questions + tests
8	3+2	Show topic data word and Data Show	Types of trocars, their classification, and the objectives of their construction.	Calculator + Lectures	Daily questions + tests
9	3+2	Show topic data word and Data Show	First month exam.	Calculator + Lectures	Daily questions + tests
10	3+2	Show topic data word and Data Show	Open trocars + covered trocars.	Calculator + Lectures	Daily questions + tests

11	3+2	Show topic data word and Data Show	Incisive and vertical trocars.	Calculator + Lectures	Daily questions + tests
12	3+2	Show topic data word and Data Show	Designs of open and covered puncture systems and calculation of distances between trocars.	Calculator + Lectures	Daily questions + tests
13	Semester exam	Show topic data word and Data Show	Mechanization of trocars and supplies for implementing trocars.	Calculator + Lectures	Daily questions + tests
14	3+2	Show topic data word and Data Show	Maintenance of open and covered trocars.	Calculator + Lectures	Daily questions + tests
15	3+2	Show topic data word and Data Show	Second month test	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- Inspection, investigations, designs, implementation and maintenance. Written by Dr. Mohsen Muhareb Al-Lami and Dr. Alaa Saleh Al-Janabi. 1991.
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:					
Deciduous Fruits 2					
2. Course Code:					
DEFR321					
3. Semester / Year:					
Second course /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: Assist. Prof. Dr. Raad Ahmed Medan Email: Raad132@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to prepare and graduate students with a distinct scientific and practical vision to improve the agricultural situation in Iraq and to provide the ministries related to agriculture with trained scientific human cadres to lead agricultural and horticultural work in state institutions. Providing an agricultural engineering staff specialized in planting and establishing orchards can create job opportunities in the private agricultural sector.					
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 and activate the thinking strategy according to the student's ability, displaying illustrative pictures of various deciduous fruits, and learning through applied field practices.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and skills	Pome fruit	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge and skills	Apples	lecture	Daily and monthly exam, attendance and reports
3	5	Knowledge and skills	Pear and quince	lecture	Daily and monthly exam, attendance

					and reports
4	5	Knowledge and skills	Stone Fruits	lecture	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Peaches and nectarines	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	Apricot	lecture	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Pears	lecture	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	Cherry	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Almonds	lecture	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	pomegranate	lecture	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Fig	lecture	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	Transport fruit	lecture	Daily and monthly exam, attendance and reports
13	5	Knowledge and skills	Pistachio	lecture	Daily and monthly exam, attendance and reports
14	5	Knowledge and skills	Walnut	lecture	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	Khaki	Field scenes at the agricultural research and experiments station	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
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	relevant books and references.
Main references (sources)	Deciduous Fruit Production / Written by Jabber Hassan Al Nuaimi, Youssef Hanna Deciduous Fruit Technology, Jassim Muhammad Alwan
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:					
Vegetables production 2					
2. Course Code:					
VEPR322					
3. Semester / Year:					
Second course / Third year					
4. Description Preparation Date:					
01/04/2024					
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:			Email:aliznl@uokirkuk.edu.iq		
8. Course Objectives					
<p>Teaching students the basics of vegetable production</p> <p>Teaching students to produce and grow summer vegetable seedlings</p> <p>Teaching students the botanical description of summer vegetable crops</p> <p>Teaching students service operations for summer vegetable crops</p>					
9. Teaching and Learning Strategies					
<p>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</p> <p>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</p>					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and skills	Study of vegetable crops belonging to the solanaceae family, such as potato	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge and skills	Study of physiological factors to germination and dormancy stage, study apical and bud dominance	Lecture and Field	Daily and monthly exam, attendance and reports

3	5	Knowledge and skills	Study of vegetable crops belonging to the solanaceae family, such as tomato	Lecture and Field	Daily and monthly exam, attendance and reports
4	5	Knowledge and skills	Study of vegetable crops belonging to the solanaceae family, such as eggplant	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Study of vegetable crops belonging to the solanaceae family, such as pepper	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	Study of cucurbitaceae vegetables and its sexratio, flowering and reason of bitterness	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Study of cucumber homland and environmental conditions, flowering, soil, fertilization, planting dates and methods	Field scenes at the agricultural research and experiments station	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	Study of melon homland and environmental conditions, flowering, soil, fertilization, planting dates and methods	Lecture and fields	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Study of watermelon homland and environmental conditions, flowering, soil, fertilization, planting dates and methods	Lecture and field	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Study of squash homland and environmental conditions, flowering, soil, fertilization, planting dates and methods	Lecture and field	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Study of vegetable crops belonging to the leguminosae family, such as bean and kidney bean	Lecture and field	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	Study of vegetable crops belonging to the malvaceae family as okra	Lecture and field	Daily and monthly exam, attendance and reports
13	5	Knowledge and skills	Study of vegetable crops belonging to the convolvulaceae family as sweet potato	Lecture and field	Daily and monthly exam, attendance and reports
14	5	Knowledge and	Study of vegetable crops	Lecture +Field	Daily and monthly exam,

		skills	that's may will planting in iraq such as asparagus and artichoke		attendance and reports
15	5	Knowledge and skills	Exam		

11.Course Evaluation

The grade for the semester endeavor is (40%), divided into (5) grades for daily preparation, participation, and submitting reports, (15) 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)	Vegetables production 2. Adnan Naser. 1989
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:					
Floriculture 2					
2. Course Code:					
FLOR323					
3. Semester / Year:					
Second/third year					
4. Description Preparation Date:					
29/3/2024					
5. Available Attendance Forms:					
mandatory					
6. Number of Credit Hours / Number of Units					
(4 Hours), 1 hr. for the theoretical and 3 hrs. for the practical part / (2 Units)					
7. Course administrator's name					
Name: Prof. Dr. Kefaia Gahzi saeed			Email: dr.kefaigahzi@uokirkuk.edu.iq		
8. Course Objectives					
Course Objectives	<p>-To make students familiar with scientific and applied information in the field of cultivation of various ornamental plants, reinforced by their importance, the nature of their growth, environmental factors affecting their growth and spread (their environmental requirements), methods of propagation, and modern techniques used in their production globally.</p> <p>-To make the students familiar with the types of ornamental plants, their botanical divisions and their field of use in gardens.</p>				
9. Teaching and Learning Strategies					
Strategy	<p>1- Cognitive objectives: This scientific approach provides the maximum benefit for students to identify the most important ornamental plants, the nature of their growth and their coordinated use in the gardens, and indicate the learning opportunities available to students to benefit from their outputs and the possibility of achieving them.</p> <p>2- Knowing and understanding the importance of ornamental plants and their coordinating uses, knowing the nature of their growth, their environmental needs, how to propagate them, and their various coordinating uses.</p> <p>3- Skill objectives specific to the course.</p> <p>4- Emotional and value objectives by preparing a student who is a thinker and auditor in his specialty and encouraging to adopt and accumulate the latest information and lead the middle cadres in production in the field of work.</p> <p>5- General and qualification skills related to employability and personal development.</p>				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	4	Cognitive	definition of different ornamental	Lecture	Daily and monthly exam, attendance and reports

			plants importance, divisions, morphology and recognizing the Annual flowers		
2nd	4	Cognitive	Studying the types of trees, divisions, classifications, importance in increasing cultivation and how to reduce environmental pollution	Lecture	Daily and monthly exam, attendance and reports
3rd	4	Cognitive	Study the types of ornamental bushes, benefits, importance, environmental requirements and pruning methods.	Lecture	Daily and monthly exam, attendance and reports
4th	4	Cognitive	Study the importance of fences plants and its most common types in Iraq and their care, pruning and renewal processes.	Lecture	Daily and monthly exam, attendance and reports
5th	4	Cognitive	Study the types of pitcher plants, their benefits, how to take care of them, pruning, breeding and renewal methods.	Lecture	Daily and monthly exam, attendance and reports
6th	4	Cognitive	hydroponic plants, their importance, characteristics,	Lecture	Daily and monthly exam, attendance and reports

			morphological variations, examples and uses.		
7th	4	First monthly test		lecture	Daily and monthly exam, attendance and reports
8th	4	Cognitive	Study the importance of cacti, their adaptations, morphological changes and their importance in rock gardening	lecture	Daily and monthly exam, attendance and reports
9th	4	Cognitive	Green spaces their environmental importance, conditions for their establishment, types, environmental factors affecting their growth and spread, and methods of propagation.	Lecture	Daily and monthly exam, attendance and reports
10th	4	Cognitive	Scientific reports and assignments for students (lectures on types of ornamental plants).	Lecture	Daily and monthly exam, attendance and reports
11th	4	Cognitive	The process of preparing vases for planting different types of summer annuals, and recognizing the most important protected facilities used in ornamental	Lecture	Daily and monthly exam, attendance and reports

			nurseries and their importance.		
12th	4	Cognitive	Recognize the most important types of landscaping available in Iraq and distinguish between landscaping that is planted in homes, parks and playgrounds.	Lecture	Daily and monthly exam, attendance and reports
13th	4	Cognitive	Recognize examples of the most important trees that are successfully cultivated in Iraq, their scientific names and methods of propagation.	lecture	Daily and monthly exam, attendance and reports
14th	4	Cognitive	Recognize examples of the most important bushes that are successfully cultivated in Iraq - their scientific names by : Showing scientific reports, field tours at the research station and visiting one of the indigenous nurseries in the governorate.	Lecture	Daily and monthly exam, attendance and reports
15th	4	Cognitive	Second monthly exam	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, (30) grades for the exams 15 for each 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">• - Adornment : Dr. Salem Sultan, Muhammad Dawood Salim and Talal Mahmoud Chalabi /(1992)• - Adornment : Dr. Salem Sultan, Mohammed Dawood Salim and Talal Mahmoud Chalabi /(1992).• - Ornamental and Landscape Architecture: Dr. Mohsen Khalaf Mahmoud + Dr. Sami Karim Chalabi /(1989)• - Ornamental plants in Iraq: Dr. Sami Karim Chalabi MM. Nisreen Khalil Al-Khayat / 2013• - Herbaceous Flowers: Dr. Sami Karim Chalabi. Nisreen Khalil Al-Khayat / 2018• - Scientific references from university journals and foreign sources:• - Kirkuk University Journal of Agricultural Sciences• - Tikrit University Journal of Agricultural Sciences• - Rafidain Journal of Agricultural Sciences
Recommended books and references	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus Google and you tube

Course Description Form

1. Course Name:					
Bees					
2. Course Code:					
BEES324					
3. Semester / Year:					
Second Semester / Third year					
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					
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					
Strategy	<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	lecture	Daily and monthly exam, attendance and reports

			sequence of bees		
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 system and its appendages	Use of laboratory	Daily and monthly 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
Horticultural Pathology
2. Course Code
HOPA325
3. Semester / Year
Second Semester / Third year
4. The history of preparation of this description
2024/3/30
5. Available Attendance Forms
presence is mandatory.
6. Number of Credit Hours (Total) / Number of Units (Total)
4 Hours /2 Units
7. Course administrator's name
Name: Dr. Saad Abdel Majeed Waheeb Email : sadoori@uokirkuk.edu.iq
8. Course Objectives
<p>Cognitive Objectives: Make the student able to:</p> <ol style="list-style-type: none"> 1- Identify the most important diseases prevalent in Iraq and the world 2. Classifies the types of diseases according to their life cycle or the nature of their reproduction 3- The student separates the types of diseases and the most important means used to reduce their vulnerability to crop productivity 4. Knows the scientific methods used to reduce the damage of diseases 5. The student evaluates the cost of chemical control, the quality of pesticides used, the method of control, addition and devices used in the fight . <p>Course skills objectives.</p> <ul style="list-style-type: none"> - Providing the student with the skill: 1 – Collection of infected plant models. 2 – Diagnosis of the type of disease . 3 - Preparation of pesticides required to be used for the control process. 4- The use of control tools, whether manual or using machines.

9. Teaching and Learning Strategies

1. Explanation and clarification

2. Lecture method

3 Student Groups

4. Practical lessons in agricultural fields

5- Scientific trips to learn about the types of diseases in Iraq

Strategy

1. Course Structure

Evaluation method	Method of education	Unit Name /	Required Learning Outcomes	Hours	Week
Exam	Explanation and presentation of the form and the lecture	Diseases and methods Control	Economic importance of diseases Orchards	2	First
Exam	Explanation and presentation of the form and the lecture	Diseases and methods Control	Or the land of fruit trees	2	Second
Exam	Explanation and presentation of the form and the lecture	Diseases and methods Control	Fruit diseases	2	Third
Exam	Explanation and presentation of the form and the lecture	Diseases and methods Control	Diseases of fruit trees with Stone core	2	Fourth
Exam	Explanation and presentation of the form and the lecture	Diseases and methods Control	Citrus diseases	2	V
Exam	Explanation and presentation of the form and the lecture	Diseases and methods Control	Olive, walnut diseases and pistachios	2	Sixth
Exam	Explanation and presentation of the form Lecture	Diseases and methods Control	Pomegranate and fig diseases	2	Seventh
Exam	Explanation and presentation of the form And the lecture	Diseases and methods Control	Palm diseases	2	Eighth
Exam	Explanation and presentation of the form And the lecture	Diseases and methods Control	Diseases of vegetables	2	Ninth
Exam	Explanation and presentation of the form Lecture	Diseases and methods Control	Diseases of the cruciferous family	2	X
Exam	Explanation and presentation of the form In the lecture	Diseases and methods Control	Compound Family Diseases	2	Eleventh
Exam	Explanation and presentation of the form In the lecture	Diseases and methods Control	Leguminous family diseases	2	Twelfth
Exam	Explanation and presentation of the form	Diseases and methods Control	Diseases of the lily family spelling	2	Thirteenth
Exam	Explanation and presentation of forms	Diseases and ways to combat them	Marshmallow family diseases	2	Fourteenth
Exam	Explanation and presentation of forms	Diseases and ways to combat them	Diseases of ornamental plants	2	Fifteenth

10. Course Evaluation

- **Quick daily exams (Kozat).**
- **Monthly exams (two or more).**
- **Evaluation of students' classroom activity.**
- **Assessments on writing research, scientific reports and homework.**

Theoretical final exam	Practical final exam	Theoretical daily tests	Practical Semester Exams	Theoretical Semester Tests
%40	%20	%5	%10	%25

11. Learning and Teaching Resources

Al Suhaily, Ibrahim Aziz and Mahdi Majeed Shukri (1979) Introduction to Plant Diseases	Required textbooks (methodology, if any)
Arabic Encyclopedia of Plant Pathology and Fungi / Dr. Muhammad Al-Hamdani	Main references (sources)
Foundations of plant diseases / Prof. Muhammad Al-Wakeel	Recommended books and references (scientific journals, reports...)
http://www.arc.sci.eg/InstsLabs/Default.aspx?OrgID=6&TabId=0&NavId=1&lang=ar	Electronic References, Websites

Course Description Form

1. Course Name:					
Plant Breeding					
2. Course Code:					
PLBR326					
3. Semester / Year:					
SECOND course / THIRD year					
4. Description Preparation Date:					
01/04/2024					
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.ALI ASGHAR ZAINEL					
Email:aliznl@uokirkuk.edu.iq					
8. Course Objectives					
The student learns the basics of plant breeding, knowing how to inherit quantitative and qualitative traits of horticultural crops, learn how to raise self-pollinated and cross-pollinated plants, how to cause mutations and male sterility and benefit from them in plant breeding.					
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 and skills	A historical overview of plant breeding, its importance and its relationship with other sciences	lecture	Daily and monthly exam, attendance and reports
2	5	Knowledge and skills	Plant propagation systems and their relationship to genetic variations, flower structure, types of	Lecture and field	Daily and monthly exam, attendance and reports

			flowers and thier modification		
3	5	Knowledge and skills	Pollination andfertilization in horticulturalplants	Lecture and field	Daily and monthly exam, attendance and reports
4	5	Knowledge and skills	Methods of breeding horticultural plants	Lecture and field	Daily and monthly exam, attendance and reports
5	5	Knowledge and skills	Hybrids production, hybrid strength calculation	Lecture and field	Daily and monthly exam, attendance and reports
6	5	Knowledge and skills	The basic steps for hybridization in horticultural plants	Lecture and field	Daily and monthly exam, attendance and reports
7	5	Knowledge and skills	Male infertility, how to artificially induce sterility in plants	Lecture and field	Daily and monthly exam, attendance and reports
8	5	Knowledge and skills	Chromosomal replication and its relationship to plant breeding	Lecture and field	Daily and monthly exam, attendance and reports
9	5	Knowledge and skills	Breeding to resist diseases and insects, dought resistance,breeding for mechanical harvesting	Lecture and field	Daily and monthly exam, attendance and reports
10	5	Knowledge and skills	Mutation and their breeding in vegetable crops	Lecture and lab	Daily and monthly exam, attendance and reports
11	5	Knowledge and skills	Self-incompatibility and its uses	Lecture and field	Daily and monthly exam, attendance and reports
12	5	Knowledge and skills	How to overcome self-incompatibility in horticultural crops	Lecture and field	Daily and monthly exam, attendance and reports
13	5	Knowledge and skills	Methods of collecting pollen and checking its vatality	Lecture and field	Daily and monthly exam, attendance and reports
14	5	Knowledge and skills	Special tools of plant breeders	Lecture and field	Daily and monthly exam, attendance and reports
15	5	Knowledge and skills	Production of hybrid seeds	Lecture and lab	Daily and monthly exam, attendance and reports

11. Course Evaluation

The grade for the semester endeavor is (40%), divided into (5) grades for daily preparation, participation, and submitting reports, (15) 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)	Practical applications in horticultural plant breeding. Kamal benyamen ESHO,2019
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:					
English language 3					
2. Course Code:					
ENLA327					
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)					
1 hour / 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 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 univers 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:					
Tissue culture					
2. Course Code:					
TICU411					
3. Semester / Year:					
First semester/4 th 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: Asst.Prof. Dr. Ali Mohammed NOORI Email: aloky1515@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to the technique of tissue culture and to employ it in propagating horticultural plants in large numbers and in ideal conditions.					
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	Introduction and historical overview of the development of tissue culture and plant cells	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Factors affecting the success of plant cell and tissue transplantation	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	Stages followed in micropropagation	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Practical applications for plant cell and tissue culture	knowledge	lecture	Daily and monthly exam, attendance and reports
5	5	Practical applications for plant cell and tissue culture	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Production of some pharmaceutical compounds	knowledge	lecture	Daily and monthly exam, attendance and reports
7	5	Rapid phylogenetic propagation	knowledge	lecture	Daily and monthly exam,

					attendance and reports
8	5	Callus formation and growth	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Protoplast fusion and cultivation	knowledge	lecture	Daily and monthly exam, attendance and reports
10	5	Plant organ transplantation	knowledge	lecture	Daily and monthly exam, attendance and reports
11	5	Embryo transplantation	knowledge	lecture	Daily and monthly exam, attendance and reports
12	5	Formation of somatic embryos	knowledge	lecture	Daily and monthly exam, attendance and reports
13	5	Cultivation of pollen, anthers and ovaries	knowledge	lecture	Daily and monthly exam, attendance and reports
14	5	Cultivation of axillary buds and growing tops	knowledge	lecture	Daily and monthly exam, attendance and reports
15	5	Food media and units used to express concentrations	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 tissue culture
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:					
Evergreen Fruits					
2. Course Code:					
EVFR412					
3. Semester / Year:					
First semester/4th year					
4. Description Preparation Date:					
2024/4/1					
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. Suzan Ali Hussein Email: suzanali8@uokirkuk.edu.iq					
8. Course Objectives					
Teaching students the basics of science related to sustainable fruit plants, methods of propagation, their origin habitat, and learning about the types of sustainable fruits, including olives, citrus fruits, mango, pineapple, coffee, sidr, and pawpaws.					
9. Teaching and Learning Strategies					
The student must be familiar with all types of sustainable fruits, methods of propagation and fertilizing them, combating diseases and pests that affect them, improving the production and care for them, and arriving at the best ways to preserve their varieties and types.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	The importance of sustainable fruit trees	knowledge	lecture	Daily and monthly exams, attendance and reports
2	5	Flowering, pollination,	knowledge	lecture	Daily and monthly exams, attendance and reports

		fertilization, setting a fruit development			
3	5	Flood, causes a treatment perennial fruit trees	knowledge	lecture	Daily and monthly exam attendance and reports
4	5	Olive	knowledge	lecture	Daily and monthly exam attendance and reports
5	5	Obstacles olive production and service operations	knowledge	lecture	Daily and monthly exam attendance and reports
6	5	History of the emergence and development of citrus cultivation and botanical description	knowledge	lecture	Daily and monthly exam attendance and reports
7	5	Environmental conditions of citrus growth plant division	knowledge	lecture	Daily and monthly exam attendance and reports
8	5	Citrus hybrid propagation rootstocks	knowledge	lecture	Daily and monthly exam attendance and reports
9	5	Describe the different types of citrus fruit and how to distinguish between them	knowledge	lecture	Daily and monthly exam attendance and reports
10	5	Manco	knowledge	lecture	Daily and monthly exam attendance and reports

11	5	the banana	knowledge	lecture	Daily and monthly exam attendance and reports
12	5	pineapple	knowledge	lecture	Daily and monthly exam attendance and reports
13	5	pineapple	knowledge	lecture	Daily and monthly exam attendance and reports
14	5	Sidr	knowledge	lecture	Daily and monthly exam attendance and reports
15	5	The papas	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)	The fruit is evergreen
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:					
vegetable seed Production					
2. Course Code:					
VESP413					
3. Semester / Year:					
First semester/fourth year					
4. Description Preparation Date:					
19/3/2024					
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					
Course Objectives	1- Make the student able to distinguish between seed varieties of different plant families. 2- Complete knowledge of all the necessary points related to the morphological description of seeds and their chemical composition. 3- Full knowledge of the necessary factors to be able to conduct the field inspection process. 4- Preparing students ready to work in the beneficiary entities.				
9. Teaching and Learning Strategies					
Strategy	1- Enable the learner to know the types of seeds by asking constructive questions. 2- Make the learner able to distinguish between varieties and genera of seeds. 3- teaching the students about the germination tests using laboratory tools. 5- Using illustrative means such as the computer and datashow. 6- Making students capable of field inspection through field visits to the fields.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Definition of seed, fertilization and seed formation, multiple embryos	Introduction to vegetable seeds	Lecture + practical	Daily and monthly exam, attendance and reports
2nd	5	Seed appearance, seed anatomy, chemical composition	Seed diagnosis	Lecture + practical	Daily and monthly exam, attendance and reports
3rd	5	Production of improved varieties, registration and approval of varieties.	Importance of seeds, reproduction of vegetable crops,	Lecture + practical	Daily and monthly exam, attendance and reports

			seed arrangement		
4th	5	Seed production establishments	Seed production establishments appendages	Lecture + practical	Daily and monthly exam, attendance and reports
5th	5	Persistence of breeder seeds in self-pollinated and cross-pollinated vegetables	Variety and purity of variety	Lecture + practical	Daily and monthly exam, attendance and reports
6th	5	Determine the health status of seeds when extracted and stored	Mechanical damage that occurs in seeds	Lecture + practical	Daily and monthly exam, attendance and reports
7th	5	First monthly test		lecture	Daily and monthly exam, attendance and reports
8th	5	Determining the condition of the field before the field inspection, the basic field inspection during the flowering and harvesting stages, the characteristics that the field inspector has.	Field inspection	A field visit to the vegetable seed production fields	Daily and monthly exam, attendance and reports
9th	5	Growth stage, thermal rotation, photosynthesis, stratification, factors affecting stratification, removal of stratification	Factors affecting flowering and seed formation	Lecture + practical	Daily and monthly exam, attendance and reports
10th	5	Factors affecting vitality, growth environment factors, genetic factors, storage environment factors	Seed vitality	Lecture + practical	Daily and monthly exam, attendance and reports
11th	5	The importance of dormancy, external dormancy, its causes and how to overcome it, the role of light in overcoming dormancy	Seed dormancy	Lecture + practical	Daily and monthly exam, attendance and reports
12th	5	Harvest determination, crop drying and seed extraction, cleaning and grading, packing and marketing	Seed preparation	Lecture + practical	Daily and monthly exam, attendance and reports
13th	5	Second monthly test		lecture	Daily and monthly exam, attendance and reports

14th	5	Physical properties of seeds, chemical properties of seeds, seed storage methods, seed packing	Store seeds	Lecture + practical	Daily and monthly exam, attendance and reports
15th	5	Seed extraction	Seed production methods	Using laboratory	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"> • Vegetable crop production book (theoretical part), written by Dr. Mitadi Bouras, Bassam Abu Turabi, and Ibrahim Al-Basit, 201 • Vegetable crop production book (practical part), written by Dr. Mitadi Bouras, Bassam Abu Turabi, Ibrahim Al-Bassit, and Samir Abu Turabi, 2004. • Vegetable crop production, Prof. Dr. Ahmed Abdel Moneim Hassan, Arab House for Publishing and Distribution, second edition, 2012.
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:					
Greenhouse Cultivation					
2. Course Code:					
GRCU414					
3. Semester / Year:					
First semester/4th year					
4. Description Preparation Date:					
2024/4/1					
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. Suzan Ali Hussein Email: suzanali8@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to the specifications of good greenhouses that guarantee obtaining the b production with high specifications					
9. Teaching and Learning Strategies					
Make the learner familiar with the establishment of greenhouses and the service operations within th so that they provide a good economic return for those who establish and maintain them.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	A historical overview of protected agriculture, definition, reality of agriculture in Iraq, problems and solutions	knowledge	lectu	Daily and monthly ex attendance and reports
2	5	Production economics	knowledge	lect	Daily and monthly ex attendance and reports

		protected agriculture compared open agriculture			
3	5	Types greenhouses and the historical development	knowledge	lect	Daily and monthly ex attendance and rep
4	5	Benefits protected agriculture	knowledge	lect	Daily and monthly ex attendance and rep
5	5	Types covers, the characteristics and specification	knowledge	lect	Daily and monthly ex attendance and rep
6	5	Greenhouse environment and its effect on plant growth	knowledge	lect	Daily and monthly ex attendance and rep
7	5	Heating greenhouses	knowledge	lect	Daily and monthly ex attendance and rep
8	5	Greenhouse cooling	knowledge	lect	Daily and monthly ex attendance and rep
9	5	Controlling the level carbon dioxide inside greenhouses	knowledge	lect	Daily and monthly ex attendance and rep
10	5	Agricultural operations greenhouses	knowledge	lect	Daily and monthly ex attendance and rep
11	5	Methods cultivation and production	knowledge	lect	Daily and monthly ex attendance and rep

		some crops under protected environment			
12	5	The most important diseases that affect plants inside greenhouses	knowledge	lect	Daily and monthly exam attendance and reports
13	5	Plant protection and disease control	knowledge	lect	Daily and monthly exam attendance and reports
14	5	Flower production under protected environment	knowledge	lect	Daily and monthly exam attendance and reports
15	5	Integrated control of plant diseases inside greenhouses	knowledge	lectur	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)	Greenhouse Cultivation
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:	
Landscape design	
2. Course Code:	
LADE415	
3. Semester / Year:	
First semester/4 th grade	
4. Description Preparation Date:	
29/3/2024	
5. Available Attendance Forms:	
mandatory	
6. Number of Credit Hours / Number of Units	
(4 Hours), 1 hr. for the theoretical and 3 hrs. for the practical part / (2 Units)	
7. Course administrator's name	
Name: Name: Prof. Dr. Kefaia Gahzi saeed Email: dr.kefaigahzi @uokirkuk.edu.iq	
8. Course Objectives	
Course Objectives	<p>1- Introduce students to garden planning with an explanation of the concepts and terms used in the field specialization and the study of appropriate plant species and environmental factors affecting their growth and distribution.</p> <p>2- Introduce students to the history of gardens through ancient times and the lives of peoples, civilizations and cultures.</p> <p>3- Using the available electronic references to know the types of systems and models used in the design and planning of gardens (their features and conditions for their establishment).</p> <p>4- Recognize the most important basic rules that determine the type of models used in gardens.</p> <p>5- Recognize the basic elements and components of the garden.</p>
9. Teaching and Learning Strategies	
Strategy	<p>1- Knowledge that deals with academic / information aspects and practical applications by introducing the importance of gardens and the most important basic rules in garden design, what are the elements and components of the different garden and the most important garden models and the advantages and disadvantages of each model and the student's knowledge of how to create a garden with simple ideas, What are the components of the garden and the factors affecting its location, as well as the processes of service and maintenance of gardens (sustainability), and the preparation of scientific reports by students with the use of multiple means of clarification as well as field knowledge enhanced by making stereoscopic models of some simple ideas that can be adopted in design and modern models.</p> <p>2- skills that encourage the student to think and see the reality of gardens in the field, adopt modern ideas and information, and the possibility of leading middle cadres in production in the field of work.</p> <p>3- General and other skills related to employability and personal development through the acquisition of academic, scientific and applied information related to the specialized scientific curriculum.</p>

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	4	cognitive	An introduction to gardens, their importance and goals, with an explanation of the scientific concepts and terminology used in the field of specialization.	Lecture	Daily and monthly exam, attendance and reports
2nd	4	cognitive	Studying the history of gardens through ancient times and learning about the history, civilizations, and culture of people.	Lecture	Daily and monthly exam, attendance and reports
3rd	4	cognitive	A chronology of garden design.	Lecture	Daily and monthly exam, attendance and reports
4th	4	cognitive	Introduction to the types of landscaping systems and the features of each of them	Lecture	Daily and monthly exam, attendance and reports
5th	4	cognitive	Planning criteria and basic rules in the planning and design of parks.	Lecture	Daily and monthly exam, attendance and reports
6th	4	cognitive	Studying the factors influencing the selection of the garden's location	Lecture	Daily and monthly exam, attendance and reports
7th	4	First monthly test		lecture	Daily and monthly exam, attendance and reports
8th	4	cognitive	Study the basic design components and elements in garden design.	lecture	Daily and monthly exam, attendance and reports

9th	4	cognitive	Types of gardens: their importance and conditions for creating them : Botanical gardens, water gardens, rose gardens, rock gardensetc	Lecture	Daily and monthly exam, attendance and reports
10th	4	cognitive	Zoos, children's gardens, home gardens, rooftop gardens, balcony and window gardens	Lecture	Daily and monthly exam, attendance and reports
11th	4	cognitive	Public parks and private gardens	Lecture	Daily and monthly exam, attendance and reports
12th	4	cognitive	Garden service and maintenance operations (implementation, maintenance and upkeep) and calculating the planned costs	Lecture	Daily and monthly exam, attendance and reports
13th	4	cognitive	A presentation of some parks and gardens and the steps of their implementation (before and after) through movies, photos and illustrative exhibitions.	lecture	Daily and monthly exam, attendance and reports
14th	4	cognitive	Choosing a model (a garden in the parts of the college), planning it, drawing it, designing it, choosing its elements, making	Lecture	Daily and monthly exam, attendance and reports

			stereotypes of simple ideas and introducing them into the proposed design and implementing it by the students after they are distributed in groups.		
15th	4	cognitive	Second Month Exam	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, (30) grades for the exams 15 for each 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"> • - Landscape Architecture: Dr. Talal Mahmoud Chalabi / 1992 • - Ornamental : Dr. Salem Sultan, Mohammed Dawood Salim and Talal Chalabi 1992 • - Ornamental and garden engineering : Dr. Mohsen Khalaf Mahmoud + Dr. Sami Karim Chalabi / 1989 • - Ornamental plants in Iraq : Dr. Sami Karim Chalabi + A.M. Nisreen Khalil Al-Khayat / 2013
Recommended books and references	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus (Google , You Tube)

Course Description Form

1. Course Name:					
Farms Management					
2. Course Code:					
FAMA416					
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)					
(4) 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 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	lecture	Daily and monthly exam, attendance and reports

			qualifications		
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:					
Vitis Culture					
2. Course Code:					
VICU421					
3. Semester / Year:					
Second semester/4 th year					
4. Description Preparation Date:					
2024/4/1					
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. Suzan Ali Hussein Email: suzanali8@uokirkuk.edu.iq					
8. Course Objectives					
<ul style="list-style-type: none"> The course aims to introduce the student to the nature of grape vine growth and how to deal with plant in a way that ensures obtaining the best quantitative and qualitative production 					
9. Teaching and Learning Strategies					
The course includes studying the grape vine, identifying its parts, the appropriate conditions for its growth, methods of cultivation and propagation, knowing its most important varieties, the diseases that affect it, and the most important service operations that improve its production, in addition to knowing the basic pruning methods and how and when to perform it, and also learning about small fruits such as strawberries, raspberries, and blackberries.					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Grapes, their economic importance and nutritional value	knowledge	lecture	Daily and monthly exam attendance and reports

2	5	Botanical classification of grapes	knowledge	lecture	Daily and monthly exam attendance and reports
3	5	Suitable environment for growing grapes	knowledge	lecture	Daily and monthly exam attendance and reports
4	5	Morphological structure grape vine	knowledge	lecture	Daily and monthly exam attendance and reports
5	5	Annual growth cycle of a grape vine	knowledge	lecture	Daily and monthly exam attendance and reports
6	5	Propagation grapes	knowledge	lecture	Daily and monthly exam attendance and reports
7	5	Raising and pruning grapes	knowledge	lecture	Daily and monthly exam attendance and reports
8	5	Grape varieties	knowledge	lecture	Daily and monthly exam attendance and reports
9	5	Preparing the nursery propagate grapes different ways	knowledge	lecture	Daily and monthly exam attendance and reports
10	5	Summer pruning (green processes)	knowledge	lecture	Daily and monthly exam attendance and reports
11	5	Planning and establishing farms	knowledge	lecture	Daily and monthly exam attendance and reports
12	5	Grape growing slopes northern Iraq	knowledge	lecture	Daily and monthly exam attendance and reports
13	5	Study of small fruits (shale)	knowledge	lecture	Daily and monthly exam attendance and reports

14	5	Study of sm fruits	knowledge	lecture	Daily and monthly exam attendance and reports
15	5	Study of sm fruits	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)	Vitis Culture
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirk University Journal of Agricultural Sciences
Electronic References, Websites	International journals included in Scopus

Course Description Form

1. Course Name:					
Date Palm					
2. Course Code:					
DAPA422					
3. Semester / Year:					
Second semester/fourth year					
4. Description Preparation Date:					
9/3/2024					
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					
Course Objectives	<ul style="list-style-type: none"> Teaching students the basics of palm production and its importance. Teaching students about the parts of palm trees, their functions, and improving their growth reproduction. Teaching students how to estimate seed viability. Teaching students how to use a microscope and chemical tools in laboratories. Preparing the student to work with entities benefiting from the specialization. 				
9. Teaching and Learning Strategies					
Strategy	<ul style="list-style-type: none"> Increasing the ability propagate palm trees by asking constructive questions. Make the students able to distinguish between varieties and genera of palm trees through: Field visits to date palm breeding fields. Using blended learning in lecturing. Using illustrative means such as the computer and datashow. Conducting discussion circles among students. 				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st	5	Introducing	History of the emergence of the date palm	lecture	Daily and monthly exam, attendance and reports
2nd	5	Environmental factors suitable for date palm cultivation	Climatic factors affecting the planting and growth of palm trees	lecture	Daily and monthly exam, attendance and reports

3rd	5	Leaves, stem, roots, dates	Morphological and structural characteristics of the date palm	lecture	Daily and monthly exam, attendance and reports
4th	5	Flowering, pollination, nodulation, and fertilization	Date fruit formation	Use of laboratory	Daily and monthly exam, attendance and reports
5th	5	Seed and vegetative methods	Methods of propagation of palm trees	Use of laboratory	Daily and monthly exam, attendance and reports
6th	5	Vegetative methods, cuttings separation and planting	Methods of propagation of palm trees	Field visit to palm fields	Daily and monthly exam, attendance and reports
7th	5	First monthly test		lecture	Daily and monthly exam, attendance and reports
8th	5	Field operations	How to get new cuttings, separate the cuttings and plant them	Field visit to palm fields	Daily and monthly exam, attendance and reports
9th	5	Field operations	Irrigation, fertilization, breeding and pruning, date palm planting	Field visit to palm fields	Daily and monthly exam, attendance and reports
10th	5	Harvesting dates	Stages of fruit growth and development, harvest date standards	Field visit to palm fields	Daily and monthly exam, attendance and reports
11th	5	Physiological and insect diseases	Palm diseases	lecture	Daily and monthly exam, attendance and reports
12th	5	Fungal and viral diseases	Palm diseases	lecture	Daily and monthly exam, attendance and reports
13th	5	Second monthly test		lecture	Daily and monthly exam, attendance and reports
14th	5	Local and international date varieties	Varieties of dates	lecture	Daily and monthly exam, attendance and reports
15th	5	Vegetative discrimination	Distinguish varieties	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)	•The Date Palm, Science and Technology Agriculture and Manufacturing, written by Profes Dr. Hassan Khaled Hassan Al-Aqidi. Engineering applications in date manufacturing, by D Ali bin Ibrahim Booker and Dr. Ahmed Abdel Rahman bin Abdel Aziz.
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:					
Biotechnology					
2. Course Code:					
Biot423					
3. Semester / Year:					
Second semester/4 th 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: Asst.Prof. Dr. Ali Mohammed NOORI Email: aloky1515@uokirkuk.edu.iq					
8. Course Objectives					
The course aims to introduce the student to the role of microorganisms in improving traits, introducing desired genes, and how to transfer them					
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	Plant biotechnology basic concepts	knowledge	lecture	Daily and monthly exam, attendance and reports
2	5	Historical introduction and applications of biotechnology	knowledge	lecture	Daily and monthly exam, attendance and reports
3	5	The nature and frequency of genetic material	knowledge	lecture	Daily and monthly exam, attendance and reports
4	5	Gene expression in plants	knowledge	lecture	Daily and monthly exam, attendance and reports
5	5	Gin clona	knowledge	lecture	Daily and monthly exam, attendance and reports
6	5	Clone vectors	knowledge	lecture	Daily and monthly exam, attendance and reports
7	5	Genetic engineering in plants	knowledge	lecture	Daily and monthly exam, attendance and reports

8	5	Genetic transformation in plants and its applications	knowledge	lecture	Daily and monthly exam, attendance and reports
9	5	Genetic transformation using Acrobacterium bacteria	knowledge	lecture	Daily and monthly exam, attendance and reports
10	5	Methods of direct gene transfer into plants	knowledge	lecture	Daily and monthly exam, attendance and reports
11	5	DNA replication reaction and its applications	knowledge	lecture	Daily and monthly exam, attendance and reports
12	5	Genetic fingerprint data analysis	knowledge	lecture	Daily and monthly exam, attendance and reports
13	5	Genetic fingerprint data analysis	knowledge	lecture	Daily and monthly exam, attendance and reports
14	5	Biosafety rules	knowledge	lecture	Daily and monthly exam, attendance and reports
15	5	Extracting DNA from cells	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)	Biotechnology
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:	
Storage & handling	
2. Course Code:	
STHA424	
3. Semester / Year:	
Second 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)	
Mohammed Abdul Aziz Lateef email: mahammdazyz@uokirkuk.edu.iq	
8. Course Objectives	
<p>Course Objectives</p> <p>The course aims to raise the level of students' knowledge regarding the factors that focus on the care and storage of horticultural crops. The storage of horticultural crops includes the storage of fruits, vegetables, and cut flowers. It has appeared since ancient times and developed with the development of civilizations to keep pace with the increase in population. It develops rapidly with the development of technology to meet the requirements of the increase in population. It needs sufficient food to meet its needs</p>	<ul style="list-style-type: none"> • • •
9. Teaching and Learning Strategies	
Strategy	<p>Identifying the aspects or factors that are related to the care, care, and storage of horticultural crops and the student's ability to control the physiological processes of the crop after harvest.</p>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Anatomical characteristics of fruits	Knowledge	lecture	Daily and monthly ex: attendance and reports
2	5	Morphological and physical characteristics	Knowledge	lecture	Daily and monthly ex: attendance and reports
3	5	Study measures complete maturity	Knowledge	lecture	Daily and monthly ex: attendance and reports
4	5	Study the change in hardness and pectins	Knowledge skills attitudes	lecture	Daily and monthly ex: attendance and reports
5	5	Study of the change in the organic acid content of fruits	Knowledge	lecture	Daily and monthly ex: attendance and reports
6	5	Study of the change in the vitamin C content of fruits	Knowledge skill attitude	lecture	Daily and monthly ex: attendance and reports
7	5	Study of the change in the total sugar content of fruits	Knowledge	lecture	Daily and monthly ex: attendance and reports
8	5	Study of the change in the	Knowledge	lecture	Daily and monthly ex: attendance and reports

		pigment content of fruits			
9	5	Study measuring the amount of respiration and transpiration in fruits	Knowledge skill	lecture	Daily and monthly ex attendance and reports
10	5	Experiment with methods of adding plant hormones	Knowledge skill	lecture	Daily and monthly ex attendance and reports
11	5	Plant cell experiments	Knowledge skill	lecture	Daily and monthly ex attendance and reports
12	5	Study of the change in fruit respiration and methods for estimating respiration speed	Knowledge skill	lecture	Daily and monthly ex attendance and reports
13	5	Visit stores for sorting and grading fruits	Knowledge skill	lecture	Daily and monthly ex attendance and reports
14	5	A visit to one of the cold stores	Knowledge skill	lecture	Daily and monthly ex attendance and reports
15	5	Transpiration in fruit	Knowledge skill	lecture	Daily and monthly ex 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 relevant books and references.
Main references (sources)	Post-harvest Physiology – ghalib naser 2017
Recommended books and references (scientific journals, reports...)	Iraqi academic scientific journals, including Kirkuk University Journal of Agricultural Sciences
Electronic References, Websites	International journals

Course Description Form

1. Course Name:	
Soil fertility and fertilizers	
2. Course Code:	
SOFF425	
3. Semester / Year:	
Second semester/fourth year	
4. Description Preparation Date:	
2024/3/31	
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: Abeer Qasim Mohammad Namdar Email: abeernamdar@uokirkuk.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> ● Understanding soil fertility concepts and how to assess soil fertility and prepare fertilizer recommendations. ● Studying the factors that affect plant growth. ● Studying the sources, forms, and factors affecting the availability of nutrients. ● Diagnosing nutrient deficiency symptoms and treating them at the appropriate time and manner, and calculating the quantities of chemical or organic fertilizers added to the soil. ● Studying the various physiological functions of these elements and their role in plant growth.
9. Teaching and Learning Strategies	
Strategy	Verbal communication with students and encouraging them to work collaboratively in the learning process, utilizing written communication skills to enhance comprehension, as well as employing brainstorming techniques to capture students' attention and activate thinking strategies according to each student's abilities, and conducting scientific visits to agricultural projects. Additionally, using PowerPoint presentation methods to deliver information in a clearer manner .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	knowledge	Soil fertility and fertilization: Origin, evolution, and concept of the science.	Lecture	Daily and monthly exams, attendance, and reports.
2	5	knowledge	Growth and the factors influencing it (genetic factors, environmental factors, biological factors).	Lecture	Daily and monthly exams, attendance, and reports.
3	5	knowledge	Fundamentals and initial concepts in soil fertility and fertilization, as well as the concept of nutrient readiness and its classification.	Lecture	Daily and monthly exams, attendance, and reports.
4	5	Knowledge, skills and attitudes	Nitrogen, functions of nitrogen in plants, forms of nitrogen in soil and its transformations, organic and inorganic nitrogen fertilizers.	The students are divided into groups.	Daily and monthly exams, attendance, and student-led seminar presentations.
5	5	knowledge	Phosphorus, functions of phosphorus in plants, forms of phosphorus in soil and its transformations, mineral phosphorus fertilizers and their application timings and methods.	The students are divided into groups.	Daily and monthly exams, attendance, and student-led seminar presentations.
6	5	knowledge	Potassium, its sources and functions in plants, forms of potassium in soil and its transformations, potassium fixation, and factors determining potassium fertilizer requirements.	The students are divided into groups.	Daily and monthly exams, attendance, and student-led seminar presentations.
7	5	knowledge	Sulfur, functions of sulfur in plants, sources of	Lecture	Daily and monthly exams, attendance, and reports.

			sulfur, and factors affecting oxidation.		
8	5	knowledge	Calcium in soil, forms of calcium in soil affecting its availability to plants and plant uptake of calcium, physiological functions of calcium, and calcium fertilizers.	Lecture	Daily and monthly exams, attendance, and reports.
9	5	Knowledge, skills and attitudes	Forms of magnesium in soil affecting the availability of calcium and magnesium to plants and plant uptake of magnesium, physiological functions of magnesium, and magnesium fertilizers.	The students are divided into groups.	Daily and monthly exams, attendance, and student-led seminar presentations.
10	5	knowledge	Micronutrients: Discuss all micronutrients with a summary of each element's functions in plants.	Lecture	Daily and monthly exams, attendance, and reports.
11	5	knowledge	Factors influencing readiness, micronutrient fertilizers with a focus on chelates, methods of applying micronutrient fertilizers, and their benefits for the second part (zinc, copper, molybdenum).	Lecture	Daily and monthly exams, attendance, and reports.
12+13	5	Knowledge, skills and attitudes	Organic matter in soil, its sources, compost and its characteristics, the importance of organic matter, factors affecting organic matter, and methods of adding organic matter.	Lecture	Daily and monthly exams, attendance, and reports.
14	5	knowledge	Fertilizer recommendation, its objectives and principles,	Lecture	Daily and monthly exams, attendance, and reports.

			and the components of fertilizer recommendation.		
15	5	Knowledge, skills, attitudes	Assigning each student to give a seminar	Lecture	Daily and monthly exams, attendance, and reports.

11. Course Evaluation

Grade distribution for the semester is as follows: (40%) is allocated, with (10) points for daily preparation, participation, and report presentations, and (20) points for monthly exams, consisting of two exams each worth (10) points, divided into theoretical and practical parts. The final exam constitutes (60%) of the grade.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The Book of Soil Fertility," authored by Dr. Saadallah Najm Al-Naeem.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> • "Tikrit University Journal" • "Anbar University Journal" • "Al-Rafidain Journal" • "Kirkuk University Journal"
Electronic References, Websites	Arabic lectures and articles issued by academic and professional entities in the field of soil fertility and plant nutrition.

Course Description Form

1. Course Name:						
English language 4						
2. Course Code:						
ENLA426						
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)						
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) / write 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

