

		
Field Crop Science	Collage of Agriculture	Wasit University

First Cycle – Bachelor's Degree (B.Sc.) –
Field Crop Science



Academic Program Description Form

University Name: wasit
Faculty/Institute: Agriculture
Scientific Department: Fieldcrops
Academic or Professional Program Name: Fieldcrops
Final Certificate Name: Fieldcrops
Academic System: Bologna
Description Preparation Date: 2/11/2025
File Completion Date: 10/3/2026

Signature:

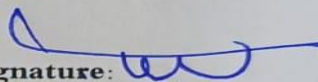


Head of Department Name:

Prof. Mubis Raheem Lahmed

Date: 10/3/2026

Signature:



Scientific Associate Name:

Wissam

Date:

10/3/2026

الاستاذ المساعد الدكتور
مهاب محمد رشيد
معاون العميد لشؤون الطلبة والدراسات العليا

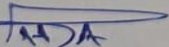
The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 10/3/2026 Hibat Alla A. Hussein

Signature:



Hakeem S. Abed
Dr. Hakeem.S. Abed
Dean

Approval of the Dean

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1. Mission & Vision Statement

Vision Statement

Leading the way to promote sustainable agriculture and agricultural innovation, by graduating qualified cadres capable of leading change in the agricultural sector, achieving food security, and preserving natural resources for future generations..

Mission Statement

- Providing high-quality education that equips students with the scientific knowledge and practical skills necessary for field work in field crop cultivation, management, and production, research, and public service.
- Promoting scientific research in the areas of environmental safety and agricultural sustainability to address current and future challenges in field crop cultivation and production.
- Enhancing collaboration with industry, government, and communities to ensure sustainable agricultural development.
- Promoting innovation, critical thinking, and lifelong learning among students and professionals in field crop science.

2. Program Specification

Program code:1;0	BSc-FS	ECTS	240
Duration: 4 years	4 levels, 8 Semesters	Method of Attendance:	Full Time

The Department of Field Crops in the College of Agriculture is a vital department that focuses on the study of strategic crops such as grains, legumes, oil crops, and fibers, with the aim of achieving food security and sustainable agricultural development. This specialization is linked to many agricultural and environmental sciences such as soil science, genetics, physiology, prevention, and agricultural economics, in addition to modern technologies such as smart agriculture and genetic engineering. The department is based on solid scientific foundations that include the study of plant morphology and physiology, genetically improving crops, increasing their productivity and tolerance to environmental stresses, as well as managing agricultural systems such as crop rotation and conservation agriculture. It aims to prepare qualified cadres capable of developing the agricultural sector, increasing productivity and crop quality to meet the needs of the local and global market, and promoting sustainable agriculture to preserve natural resources. It also contributes to scientific research concerned with solving problems in the agricultural sector. The societal motivation to engage in this specialization stems from its direct connection to food security, addressing the challenges of population growth, providing job opportunities in the agricultural and research sectors, contributing to rural development, and increasing farmers' income. In the early stages, students study the basics of botany, soil science, genetics, and plant production methods, while in the advanced stages, they delve into crop management. They will also gain practical skills in agricultural project management, the use of modern technologies, and data analysis to improve production. This will qualify graduates to work in ministries of agriculture, research centers, agricultural companies, and international food organizations, or to establish private agricultural projects. They will also pursue postgraduate studies in the fields of biotechnology, climate change, and agricultural economics, thus becoming active players in achieving food and economic stability.

3. Program Objectives

1. Enhancing Scientific Knowledge:

- Providing students with theoretical and practical knowledge in agricultural sciences and agricultural engineering.
- Enhancing students' understanding of the environmental and economic challenges in the agricultural sector.

2. Developing Practical Skills:

- Developing students' skills in using modern technologies and managing agricultural resources.
- Enhancing the ability to design and implement sustainable agricultural projects.

3. Promoting Ethical and Professional Values:

- Instilling values of sustainability and social responsibility in students.
- Enhancing commitment to professional ethics in agricultural research and practice.

4. Promoting Scientific Research and Innovation:

- Encouraging students to participate in scientific research that contributes to solving agricultural problems.
- Supporting innovation in the field of agriculture by providing a stimulating learning environment.

5. Community Service:

- Preparing graduates capable of contributing to improving the quality of life in rural communities.
- Enhancing cooperation with the public and private sectors to achieve food security.

6. Continuous Development of Academic Programs:

- Updating curricula to keep pace with recent developments in agricultural sciences.

Ensuring the quality of academic programs through continuous evaluation and improvement.

4. Student Learning Outcomes

The learning outcomes of the Department of Crop Sciences in the College of Agriculture focus on equipping students with the knowledge and skills necessary to understand and apply the concepts of field crop cultivation and production, and to analyze and evaluate the quality and safety of agricultural products. This is achieved through:

1. Enhancing Scientific Knowledge:

- Providing students with theoretical and practical knowledge in agricultural sciences and agricultural engineering.
- Enhancing students' understanding of the environmental and economic challenges in the agricultural sector.

2. Developing Practical Skills:

- Developing students' skills in using modern technologies and managing agricultural resources.
- Enhancing their ability to design and implement sustainable agricultural projects.

3. Promoting Ethical and Professional Values:

- Instilling values of sustainability and social responsibility in students.

- Enhancing commitment to professional ethics in agricultural research and practice.

4. Promoting Scientific Research and Innovation:

- Encouraging students to participate in scientific research that contributes to solving agricultural problems.
- Supporting innovation in the field of agriculture by providing a stimulating learning environment.

5. Community Service:

- Preparing graduates capable of contributing to improving the quality of life in rural communities.
- Enhancing cooperation with the public and private sectors to achieve food security.

6. Continuous development of academic programs:

- Updating curricula to keep pace with recent developments in agricultural sciences.

Ensuring the quality of academic programs through continuous evaluation and improvement.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

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

Grading

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

GRADING SCHEME مخطط الدرجات				
Definition	الدرجات (%)	التقدير	Grade	المجموعة
Outstanding Performance	90 - 100	امتياز	A - Excellent	مجموعة النجاح (50 - 100)
Above average with some errors	80 - 89	جيد جدا	B - Very Good	
Sound work with notable errors	70 - 79	جيد	C - Good	
Fair but with major shortcomings	60 - 69	متوسط	D - Satisfactory	
Work meets minimum criteria	50 - 59	مقبول	E - Sufficient	

More work required but credit awarded	(45-49)	راسب - قيد المعالجة	FX – Fail	مجموعة الرسوب (0 – 49)
Considerable amount of work required	(0-44)	راسب	F – Fail	
			:Note	
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

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

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

$$\text{CGPA} = [(1^{\text{st}} \text{ module score} \times \text{ECTS}) + (2^{\text{nd}} \text{ module score} \times \text{ECTS}) + \dots] / 240$$

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
WU03	English language 1	33	17	2	B	
WU04	Democracy and Human Rights	33	17	2	B	
AGR1205	Principles of Animal Production	78	72	6	C	
SC1102	Principles of Soil Science	78	72	6	S	
AGR1101	Mathematics and Statistics	78	72	6	S	
FC1102	Botany	78	72	6	C	
AGR1102	Agriculture Extension	33	17	2	S	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
WU01	Arabic language 1	33	17	2	B	
WOU02	Computer 1	48	27	3	B	
AGR1203	Land Area and Leveling	78	47	5	S	
FC1203	Plant Taxonomy and Anatomy	78	97	7	C	
AGR1204	Plant Chemistry	78	47	5	C	
FC1101	Principles of Field Crops	78	72	6	C	
FC1204	Principles of Agricultural Economics and Marketing	33	17	2	C	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
WU25	Arabic language 2	33	17	2	B	
WU24	Crimes of the Ba'ath Party	33	17	2	B	
FC2105	Soil Fertility and Nutrient Management	78	97	7	C	
FC2106	Cereals and Legumes	78	97	7	C	
FC2107	Crops Mechanization and Harvesting Techniques	78	47	5	C	
FC2108	Principle of Horticulture	78	47	5	C	
FC2109	Agricultural laws and regulations	33	17	2	C	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
WU23	English Language 2	33	17	2	B	
WOU22	Computer 2	48	27	3	B	
FC2210	Plant Environment	78	72	6	C	
FC2211	Oil and Sugar Crops	78	72	6	C	
SC2202	Microorganisms and Soil Health	78	22	4	C	
PP2201	Crops Insects and Bee Management	78	22	4	C	
SC2203	Irrigation and Drainage Systems	78	47	5	C	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

8. Contact

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Wasit University

جامعة واسط



First Cycle – Bachelor's Degree (B.Sc.) –
Food Science

بكالوريوس – علوم المحاصيل الحقلية



Table of Contents

1. Overview
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COURSES
FOR THE FIRST
STAGE
FIELD CROPS DEPARTMENT

1. Overview

This catalogue is about the courses (modules) given by the program of Field crops Science to gain the Bachelor of Science degree. The program delivers (48) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

2. Undergraduate Courses 2025-2026

Module 1

Code	Course/Module Title	ECTS	Semester
WU03	Academic English Language 1	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	17
Description			
This course is designed to develop students' academic English language skills, with a focus on enhancing their reading, writing, listening, and speaking abilities in an academic context. Emphasis is placed on vocabulary development, grammar accuracy, sentence and paragraph structure, and basic academic writing techniques. Students will engage with a variety of texts and practice language skills through structured activities that build confidence in understanding and using English in university and professional settings. The course prepares students for future academic success by strengthening their ability to comprehend lectures, write assignments, participate in discussions, and read academic materials effectively.			

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	English Language2	Module Delivery
Module Type	Basic	☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	WU03	
ECTS Credits	2	
SWL (hr/sem)	50	

Module Level	1	Semester of Delivery	2
Administering Department	Field crop dept.	College	College of Agriculture
Module Leader	Msc. Anaam Kadem Abaas	e-mail	skareem@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PhD
Module Tutor		e-mail	
Peer Reviewer Name	Nabil R. Lahmod	e-mail	
Scientific Committee Approval Date	1/3/2025	Version Number	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Objectives أهداف المادة الدراسية	To enable the learner to communicate effectively and appropriately in real life situation: b. to use English effectively for study purpose across the curriculum; c. to develop interest in and appreciation of Literature; d. to develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing; e. to revise and reinforce structure already learnt.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	To develop the students' abilities in grammar, oral skills, reading, and study skills 1. Students will increase their awareness of correct usage of English grammar in writing and speaking. 2. Improve their speaking ability in English both in terms of fluency and comprehensibility. 3. Receive feedback on their performance through oral presentations. 4. Increase their reading speed and comprehension of academic articles. 5. improve their reading fluency skills through extensive reading. 6. Expand their vocabulary by keeping a vocabulary journal. 7. strengthen their ability to write academic papers, essays and summaries using the process approach.		
Indicative Contents المحتويات الإرشادية	The course aims to develop communicative competence in English for intercultural contexts by teaching language items and communicative strategies essential for such		

	scenarios, while at the same time giving students ample chances to output such items. The aims of this course are reflected in the content, which contains several themes, such as cultural awareness, intercultural awareness and English as a global language. Indicative content includes understanding the uniqueness of your own culture and other cultures, as well as being aware of the role culture plays in communication in English as a global language. In addition, this course allows for discussions about what it means for English to be a global language of communication and how misunderstandings and miscommunications when using English occurs. The course also includes practice in the pronunciation features that help improve intelligibility in intercultural contexts, namely the Lingua Franca Core.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Cultivate relationships Speaking with students to know each student, helps you understand who they are, where they come from and, perhaps, gain some insight into what teaching and learning styles are most effective for them. 2. Teach language skills across all curriculum topics 3. Speak slowly and be patient: Speaking in a slower, measured cadence Being a bit more aware of your pronunciation 4. Prioritize “productive language” 5. Using a variety of methods to engage learning 6. Using visual aids by the use of pictures, diagrams, charts and other visual tools. 7. Coordinate with the ESL teacher: Such discussions can yield insights into individual students and their learning styles or challenges; they can also be helpful for sharing information about curriculum topics, potentially providing ESL teachers with ideas for highly relevant vocabulary words that can reinforce academic lessons. 8. Pre-teach new vocabulary words that may be unfamiliar to ELLs, or even to give them a copy of the article or link to the material ahead of time. 9. Build in some group work. 10. Respect moments of silence: Many new language learners tend to be a little reticent and quiet, opting for silence over speaking up and saying something “wrong” in a language that is still unfamiliar. Research-based strategies for differentiating instruction to promote student learning

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1

الحمل الدراسي غير المنتظم للطالب أسبوعيا	
الحمل الدراسي غير المنتظم للطالب خلال الفصل	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Unit-1 (Hello)
Week 2	Unit-2 (Your world)
Week 3	Unit-3 (Personal information)
Week 4	Unit-4 (Family and friends)
Week 5	Unit-5 (It's my life)
Week 6	Unit-6 (Every day)
Week 7	Mid-term Exam
Week 8	Unit-7 (Places I like)
Week 9	Unit-8 (Where I live)
Week 10	Unit-9 (Happy birthday)
Week 11	Unit-10 (We had a good time)
Week 12	Unit-11 (we can do it)

Week 13	Unit-12 (Thank you very much)
Week 14	Unit-13 (Here and now)
Week 15	Unit-14 (It's time to go)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Headway. Beginner. Student's Book by Liz and John Soars, 2019.	Yes
Recommended Texts		No
Websites	https://elt.oup.com/student/headway/beg/?cc=global&selLanguage=en	

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

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

Module 2

Code	Course/Module Title	ECTS	Semester
WU04	Democracy and human rights	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	17
Description			
This course introduces students to the core concepts, principles, and practices of democracy and human rights at the national and international levels. It explores the development of democratic systems, the rule of law, citizenship, civil liberties, political participation, and the protection of individual and collective rights. Students will study major human rights declarations and conventions, such as the Universal Declaration of Human Rights, and the roles of international organizations in promoting justice and equality. Through discussions, case studies, and interactive activities, the course aims to strengthen students' awareness of their rights and responsibilities as citizens and to encourage active participation in democratic processes.			

MODULE DESCRIPTION FORM

Module Information								
Module Title	Democracy and human rights		Module Delivery					
Module Type	S		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar					
Module Code	WU04							
ECTS Credits	2							
SWL (hr/sem)	50							
Module Level	1	Semester of Delivery	1					
Administering Department	Field crop Science Dept.	College	College of Agriculture					
Module Leader	Asst. Prof. Dr. Haider Atta		e-mail	akareem@uowasit.edu.iq				
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.					
Module Tutor			e-mail					
Peer Reviewer Name	Name	e-mail	E-mail					
Scientific Committee Approval Date	15/11/2025	Version Number	1.0					

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. Introduce students to the concept of democracy, its historical development, various forms, and mechanisms of implementation in modern political systems. 2. Enhance students' awareness of human rights, including their definition, types (civil, political, economic, social, cultural), and the international and local sources that protect these rights. 3. Promote a culture of tolerance and active citizenship among students, and encourage respect for others' opinions and political and cultural pluralism. 4. Enable students to distinguish between democratic and non-democratic systems, analyze their characteristics, and assess their impact on societies. 5. Highlight the role of national and international institutions in the protection and promotion of human rights. 6. Introduce students to international human rights declarations and conventions, such as the Universal Declaration of Human Rights and the two International Covenants. 7. Encourage students to participate in public life and practice their political and civil rights with awareness and responsibility. 8. Develop students' critical thinking regarding contemporary issues related to freedom, justice, equality, and the rights of vulnerable and marginalized groups.
Module Learning Outcomes	1. Explain the basic concepts of democracy and human rights, and distinguish them from similar or overlapping concepts. 2. Analyze the development of democratic thought throughout history, and identify its forms and contemporary applications. 3. Identify the types of human rights (civil, political, economic, social, cultural) and their international and local legal sources. 4. Evaluate the role of national and international organizations in the protection and promotion of human rights, such as the United Nations, international courts, and civil society organizations. 5. Compare democratic and non-democratic systems in terms of structure, function, and their impact on public freedoms. 6. Apply democratic principles in university and community life, through respect for others' opinions, teamwork, and active participation. 7. Recognize human rights violations in various contexts and be able to propose humanitarian and legal solutions or alternatives.

	8. Demonstrate ethical and humanitarian commitment to issues related to equality, justice, and the rights of vulnerable and marginalized groups in society.
Indicative Contents	1. Introduction to Democracy and Human Rights ○ Basic concepts ○ Importance and objectives 2. Origin and Development of Democracy ○ Historical roots ○ Contemporary models of democracy 3. Forms of Democracy ○ Direct democracy ○ Representative democracy 4. Human Rights: Concept and Characteristics ○ Classifications (civil, political, economic...) ○ Fundamental principles (dignity, equality, freedom) 5. International Human Rights Instruments ○ The Universal Declaration of Human Rights ○ The International Covenant on Civil and Political Rights ○ The International Covenant on Economic, Social and Cultural Rights 6. Mechanisms for the Protection of Human Rights ○ Nationally (constitution, judiciary) ○ Internationally (United Nations, international organizations) 7. Democracy and Human Rights in the Arab Context ○ Challenges and opportunities ○ Positive and negative examples 8. The Role of Citizens in a Democratic System ○ Political participation ○ Social responsibility 9. Contemporary Human Rights Issues ○ Women's rights ○ Children's rights ○ Freedom of expression 10. Conclusion and General Evaluation ○ Comprehensive review ○ Open discussions and practical applications

Learning and Teaching Strategies	
Strategies	• Interactive lectures: To present basic concepts and theories in a simplified and clear manner. • Brainstorming and classroom discussions: To stimulate critical thinking and promote the exchange of ideas. • Case studies: To analyze real-life situations related to human rights and democracy.

	• Group work: To develop a spirit of cooperation and dialogue among students. • Student presentations: To enhance communication and research skills. • Field visits or meetings with human rights organizations (if possible): To connect theory with practical application. • Use of multimedia: Such as videos and documents to showcase examples of the struggle for democracy and human rights. • Short reports and research papers: To encourage self-learning and deepen understanding.
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Student Workload (SWL)			
Structured SWL (h/sem)	33	Structured SWL (h/w)	3
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1
Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	2	20% (10)	7	LO #1 - #6
	Projects	1	10% (10)	15	LO #1 - #15
	Reports	1	10% (10)	15	LO #1 - #14
Summative assessment	Mid Exam	2hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Definition of Human Rights
Week 2	Origin and Development of the Concept of Human Rights
Week 3	Overview of Human Rights in Ancient Civilizations (Mesopotamia, Nile Valley)
Week 4	Human Rights in Divine Religions
Week 5	Human Rights and Their Relation to Other Variables
Week 6	Relationship Between Rights and Law

Week 7	Relationship Between Rights and Duties
Week 8	Key Fundamental Human Rights
Week 9	Impact of Globalization on Human Rights
Week 10	Major International Declarations and Conventions on Human Rights
Week 11	Universal Declaration of Human Rights (1948)
Week 12	Cairo Declaration on Human Rights in Islam
Week 13	Human Rights in International Charters and Laws
Week 14	International Covenant on Civil and Political Rights
Week 15	Financial and Administrative Corruption

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Theory and practical lectures	Yes
Recommended Texts	Human rights Book	Yes
Websites		

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

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

Module 3

Code	Course/Module Title	ECTS	Semester
FC1102	Botany	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Botany		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	FC1101			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGx11 1	Semester of Delivery	1	
Administering Department	Field Crops Department	College	College of Agriculture	
Module Leader	Dr. Ahmed Shaker Muhsin	e-mail	ahshaker@uowasit.edu.iq	

Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	PhD
Module Tutor	Nada Mohammed Saadoun	e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/11/2025	Version Number	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	Definition, History, Importance, and Branches of Botany: Understanding botany as a broad scientific field, tracing its historical development, recognizing its significance, and exploring its various branches such as anatomy, physiology, taxonomy, ecology, and plant genetics. Plant Cell Structure and Tissue Types: Comprehending the structure and components of plant cells, and identifying the different types of plant tissues and their functions. Morphological and Anatomical Structure of Plant Organs: Recognizing the morphological and anatomical structures of major plant parts including roots, stems, leaves, flowers, fruits, and seeds. Fundamental Plant Physiological Processes: Recognizing the essential physiological processes occurring in plants, such as photosynthesis, respiration, absorption, transport, growth, and reproduction, along with the role of hormones and environmental factors in these processes. Principles of Plant Classification and Modern Taxonomy: Understanding the foundations of plant classification, identifying different plant species and their evolutionary relationships, and becoming familiar with modern classification systems. Plant-Environment Interactions and Biogeochemical Cycles: Comprehending the interactions between plants and their environment, their role in biogeochemical cycles (such as the carbon cycle), and the impact of
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	environmental factors on plant growth and distribution.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding Plant Structure and Function: Recognize the structure of plant cells, plant tissues, and the different plant organs (root, stem, leaf, flower, fruit, seed). Comprehend the function of each part and how they work together. 2. Recognizing Plant Diversity and Classification: Appreciate the vast diversity within the plant kingdom, understand the principles of plant classification, and be able to distinguish major plant groups (such as algae, fungi, non-vascular plants, ferns, gymnosperms, and angiosperms). 3. Grasping Plant Physiological Processes: Understand the essential physiological processes that occur in plants, such as photosynthesis, respiration, nutrition, water and nutrient absorption, transport, and growth regulation by plant hormones. 4. Comprehending Plant Evolution and Ecology: Understand the origin and evolution of plant groups throughout the ages. Recognize the relationship between plants and their environment, their role in ecosystems, and the impact of various environmental factors on plant growth and distribution. 5. Knowing the Economic and Ecological Importance of Plants: Be aware of the economic importance of plants as a source of food, medicine, fibers, and more. Understand their role in maintaining ecological balance and protecting natural resources.
Indicative Contents المحتويات الإرشادية	1. Nature of Botany: Historical overview, importance of plants to humans, relationship of botany with other sciences, forms and types of plants. 2. Plant Body: Primary plant body, secondary plant body, plant cell, cell wall, steps of cell wall formation. 3. Chemical Composition of the Cell Wall: Cellulose, hemicellulose, pectin, gums and mucilage, lignin, lipids, fine structure of the cell wall. 4. Plant Tissues: Meristematic tissues – classification based on origin and position in the plant. 5. Permanent Tissues: Parenchyma tissue, collenchyma tissue, sclerenchyma tissue. First Monthly Exam. 6. Secretory Tissues: External secretory tissues, internal secretory tissues. Dermal tissues: epidermis, stomata, trichomes and epidermal outgrowths, functions of the epidermis. 7. Complex Permanent Tissues: Xylem tissue (vessels, tracheids, xylem parenchyma, fibers), phloem tissue (sieve tubes, companion cells, phloem parenchyma and fibers). 8. Root System: Types of root systems (taproot and fibrous), economic benefits of roots, functions of roots, types of adventitious roots. 9. Stem: Functions of the stem, classification of stems based on their ability to stand erect, external morphology of the stem.

	10. Types of Stem Branching: Stem modifications. Second Monthly Exam. 11. Leaf: Origin of the leaf, arrangement of leaves on the stem, leaf venation. External appearance of monocot and dicot leaves. 12. Leaf Modifications: Leaf abscission, economic importance of leaves. 13. Flowers: Definition, floral parts (calyx, corolla, stamens, pistil), types of flowers. 14. Fruits: Definition, types (simple fruits, aggregate fruits, multiple fruits). 15. Environmental Impact on Plant Morphology and Anatomy: Aquatic, desert, and halophyte plants.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Interactive Lectures • Multimedia-Enhanced Lectures: Utilize presentations rich with high-quality images, diagrams, videos, and 3D animations to explain complex plant structures and physiological processes. This helps in visualizing abstract concepts. • Guided Discussions: Pose open-ended questions during lectures to encourage students to think and participate, connecting theoretical concepts to real-world applications. • Q&A Sessions: Allocate time for students to ask questions and receive immediate answers, fostering understanding and resolving any confusion. • Brainstorming: At the beginning or end of each topic, conduct brainstorming sessions to generate ideas and activate students' prior knowledge.
	2. Practical and Laboratory Learning The laboratory is a cornerstone of botany education, providing direct experience with plants. • Laboratory Experiments: Conduct experiments on plant physiology (e.g., photosynthesis, transpiration, water absorption), plant anatomy (preparing and viewing sections under the microscope), and tissue culture. • Specimen Identification: Provide real plant specimens (live or preserved) for studying external and internal structures and identifying different species. • Microscope Usage: Train students on the effective use of light microscopes to observe cellular and tissue details. • Diagrammatic Drawings: Encourage students to draw what they observe under the

microscope or from specimens, which enhances meticulous observation and understanding.

3. Project-Based Learning (PBL)

This strategy encourages active learning and the development of problem-solving skills.

- **Group or Individual Projects:** Assign students research or practical projects such as:
 - Studying a specific plant in detail (its classification, anatomy, physiology, economic importance).
 - Designing and conducting a simple experiment to study the effect of an environmental factor on plant growth.
 - Building a small garden or greenhouse within the college (or a miniature model).
 - Preparing reports or presentations on environmental issues related to plants (e.g., deforestation, endangered plants).
 - **Problem-Based Learning:** Present real-world scenarios or problems (e.g., a disease affecting an agricultural crop) and task students with researching solutions based on botanical knowledge.
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4. Field Trips and Scientific Excursions

- **Local Botanical Gardens:** Visit local botanical gardens to learn about plant diversity in their natural or semi-natural environments and apply classification concepts.
 - **Nature Reserves:** Explore different plant ecosystems and the role of plants within them.
 - **Farms or Nurseries:** Learn about the agricultural applications of botany and production processes.
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5. Use of Technology and Distance Learning

- **Simulation Software:** Utilize simulation programs to study physiological processes or structures that are difficult to observe in the laboratory.
 - **Virtual Reality (VR) and Augmented Reality (AR):** Explore the potential for 3D visualization of plant structures or simulating different plant environments.
 - **Online Learning Resources:** Guide students to botanical databases, scientific journals, and reliable educational websites.
 - **Flipped Classroom:** Students watch lectures and theoretical materials at home, and class time is dedicated to discussions, problem-solving, and practical activities.
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6. Collaborative Learning

	● Study Groups: Encourage students to work in small groups to discuss concepts, solve assignments, or prepare for projects. ● Peer Review: Students can review each other's work (e.g., lab reports) to enhance understanding and develop constructive criticism skills. 7. Continuous and Diverse Assessment ● Quizzes and Assignments: To regularly assess understanding of the material. ● Lab Reports: To assess practical and analytical skills. ● Presentations: To assess communication and information presentation skills. ● Research Projects: To assess research and critical thinking skills.
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Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative	Quizzes	1	10% (10)	15	LO #1 - #14

assessment	Assignments	1	10% (10)	6	LO #1 - #5
	Projects / Lab.	1	10% (10)	7	LO #1 - #6
	Report	1	10% (10)	15	LO #1 - #14
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	☐ Nature of Botany: A historical overview, the importance of plants to humans, the relationship of botany with other sciences, forms and types of plants.
Week 2	☐ The Plant Body: The primary plant body, the secondary plant body, the plant cell, the cell wall, steps in cell wall formation.
Week 3	☐ Chemical Composition of the Cell Wall: Cellulose, hemicellulose, pectin, gums and mucilages, lignin, lipids, fine structure of the cell wall.
Week 4	☐ Plant Tissues: Meristematic tissues – their classification based on origin and location on the plant.
Week 5	☐ Permanent Tissues: Parenchyma tissue, collenchyma tissue, sclerenchyma tissue. First Monthly Exam.
Week 6	☐ Secretory Tissues: External secretory tissues, internal secretory tissues – dermal tissues, epidermis, stomata, trichomes and epidermal outgrowths, functions of the epidermis.
Week 7	☐ Complex Permanent Tissues: Xylem tissue – vessels, tracheids, xylem parenchyma, fibers. Phloem tissue – sieve tubes, companion cells, phloem parenchyma and fibers.
Week 8	☐ The Root System: Types of root systems – taproot and fibrous root systems, economic benefits of roots, functions of roots, types of adventitious roots.
Week 9	☐ The Stem: Functions of the stem, classification of stems based on their ability to stand erect, morphological appearance of the stem.
Week 10	☐ Types of Stem Branching: Stem modifications. Second Monthly Exam.

Week 11	☐ The Leaf: Origin of the leaf, arrangement of leaves on the stem, leaf venation. External appearance of monocot and dicot leaves.
Week 12	☐ Leaf Modifications: Leaf abscission, economic importance of leaves.
Week 13	☐ Flowers: Definition, floral parts – calyx, corolla, stamens, pistil, types of flowers.
Week 14	☐ Fruits: Definition, types (simple fruits, aggregate fruits, multiple fruits).
Week 15	☐ Environmental Impact on Plant Morphology and Anatomy: Aquatic, desert, and halophytic plants.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	☐ Slide Preparation Methods - Microscope - Types of Microscopes - Microtome and its Types.
Week 2	☐ The Plant Cell - Cytoplasmic Organelles - Plasma Membrane - Nucleus.
Week 3	☐ Cell Wall Structure - Primary Wall - Secondary Wall - Middle Lamella - Types of Pits.
Week 4	☐ Cell Division - Its Types - Cell Cycle - Mitosis.
Week 5	☐ Meiosis - First Monthly Exam.
Week 6	☐ Meristematic Tissues - Apical Tissues - Intercalary Tissues - Cambial Tissues.
Week 7	☐ Simple and Complex Permanent Tissues - Vascular Bundles.
Week 8	☐ Internal Structure of Roots - Root Zones.
Week 9	☐ Internal Structure of the Stem.
Week 10	☐ Shoot Apical Meristem - Second Monthly Exam.
Week 11	☐ Internal Structure of Monocot and Dicot Leaves.

Week 12	☐ Leaf Shapes - Leaf Margin - Leaf Base.
Week 13	☐ Flower Structure (Flower Parts) - External Appearance of Flower Types.
Week 14	☐ Fruit Structure - Identification of Some Fruit Types.
Week 15	☐ Identification of Some Aquatic, Halophytic, and Desert Plant Types.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Al-Nabat Al-Aam (General Botany). (Vol. 1). Shawqi, Ahmed, Badri Al-Ani, Ibrahim Al-Suhaili, Abbas Ahmed Al-Saleh, Abdul Hadi Saleh, and Majeed Al-Hilli. Al-Musawi, Abdullah Hamad and Hussein Ali Al-Saadi. 1980. Practical General Botany. Ministry of Higher Education. University of Basra. 2. Fundamentals of General Botany. 2009. Mahmoud Mohamed Gabr, Ismail Mohamed Kamel, and Effat Fahmy Shabana. Dar Al-Fikr Al-Arabi. Cairo. 3. Fundamentals of Plant Anatomy. 1988. Dr. Badri Owaid Al-Ani and Qaisar Najeeb Saleh. University of Mosul Press.	نعم
Recommended Texts	Reliable Scientific Journals Scientific Reports	كلا
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	Excellent	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors

	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings
	E - Sufficient	Pass	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	Fail (In Progress)	(45-49)	More work required but credit awarded
	F – Fail	Fai	(0-44)	Considerable amount of work required

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

Module 4

Code	Course/Module Title	ECTS	Semester
AGR1205	Principles of Animal Production	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
This course aims to provide students with the fundamental concepts of animal production, including the breeding and care of economically important livestock such as cattle, sheep, and poultry. It focuses on teaching students the factors affecting animal productivity, such as nutrition, health management, genetic improvement, and farm operations. Additionally, the course seeks to familiarize students with the significance of animal production in meeting society's protein needs and ensuring food security. Finally, it prepares graduates to apply modern breeding and production techniques to enhance economic efficiency and environmental sustainability.			

MODULE DESCRIPTION FORM

Module Information		
Module Title	Principles of Animal Production	Module Delivery

Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	AGR1205			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery	1	
Administering Department	Field crop Dept.		College	College of Agriculture
Module Leader	Dr. Mohammed Abdullah Khamees		e-mail	moabdalah@uowasit.edu.iq
Module Leader's Acad. Title	Assist. Professor		Module Leader's Qualification	Ph.D.
Module Tutor	Saja Antsar Abed		e-mail	
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	15/11/2025		Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	• Introduce students to the economic importance of livestock and its products. • Identify the different breeds of cattle, buffalo, sheep, and goats, and their classifications according to production. • Gain a basic understanding of the basics of reproduction and reproduction in ruminants. • Provide students with practical skills in calf care and basic ruminant nutrition. • Identify milk production methods and the factors affecting it. • Understand the daily, weekly, and seasonal field operations necessary to manage livestock production pens. • Introduce students to the importance of field records and how to use them to improve production efficiency.

Module Learning Outcomes	A- Cognitive Objectives 1 - Introduce the student to the economic importance of livestock and its role in food security. 2 - Identify the different breeds of cattle, buffalo, sheep, and goats, and classify them according to their production type. 3 - Clarify the basic concepts of ruminant animal nutrition. 4 - Explain the basics of reproduction in cattle and other ruminants. 5 - Identify the principles and types of animal housing design. 6 - Explain the field operations and production records used in herd management. B - Course Skill Objectives 1 - Distinguish between different breeds based on morphological and production characteristics. 2 - Be able to assess the needs of young calves and provide appropriate care for them. 3 - Analyze production data using field records. 4 - Apply theoretical concepts to real-life or environmental situations, such as analyzing an animal housing system or feeding plan.
Indicative Contents	1- Explain the economic and productive importance of livestock in supporting food security and agricultural development. 2- Classify major animal breeds according to their production purpose and identify their general characteristics. 3- Explain the basic concepts of reproduction, health care, and nutrition for ruminants. 4- Explain the general principles of animal nutrition, milk production, and the factors affecting it. 5- Describe daily, weekly, and seasonal field operations and the use of production records. 6- Identify animal housing types and requirements, and identify the environmental and production characteristics of various animals, such as buffalo, sheep, and goats.

Learning and Teaching Strategies	
Strategies	1-Lectures and Presentations Core theoretical knowledge will be delivered through interactive lectures supported by multimedia presentations, diagrams, and real-life examples from the animal production sector.
	2-Field Visits and Practical Demonstrations Students will participate in scheduled visits to the animal farm (first and second visits), where they will observe and engage in basic field operations, animal handling, housing systems, and feeding practices.
	3-Hands-on Training Direct involvement in animal care tasks such as calf rearing, feed preparation, identifying animal breeds, reproductive health checks, and poultry housing setup to develop applied skills.
	4-Group Discussions and Case Studies Group-based learning through analysis of production scenarios, reproductive case studies, and comparative evaluations of different breeds and production systems.
	5-Visual Aids and Models Use of anatomical models, charts, and digital simulations to explain complex biological and physiological concepts such as reproduction, pregnancy, and growth stages.
	6-Farm Records and Data Analysis Students will learn how to record, interpret, and analyze farm data to assess productivity and improve management practices.
	7-Student Presentations and Reports Each student will be encouraged to present short reports or reflections based on field experiences, breed comparisons, or nutrition plans for different species.

Student Workload (SWL)			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5
Unstructured SWL (h/sem)	47	Unstructured SWL (h/w)	3
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	1	10% (10)	8	LO #1 - #7
	Projects	1	10% (10)	6	LO #1 -#5
	Lab	1	10% (10)	9	LO #1 - #8
	Reports	1	10% (10)	15	LO #1 - #14
Summative assessment	Mid Exam	2hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Economic Importance of Animal Products
Week 2	Breeds of Cattle and Buffalo
Week 3	Types and Breeds of Cattle

Week 4	Introduction to Reproduction in Cattle
Week 5	Calf Rearing and Care
Week 6	Concept of Nutrition in Ruminant Animals
Week 7	Milk Production from Cattle and Buffalo
Week 8	Basic Daily, Weekly, and Seasonal Farm Operations
Week 9	Farm Records and Identification of Productive Information
Week 10	Animal Housing and Its Types
Week 11	The Buffalo
Week 12	Sheep and Goat Rearing
Week 13	Economic Importance of Sheep and Goat Products
Week 14	Classification and Methods of Classification
Week 15	Reproduction in Ruminant Animals

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Field Operations 1
Week 2	Field Operations 2
Week 3	Field Operations 3
Week 4	First Visit to the Animal Farm
Week 5	Basic Field Operations on Animals
Week 6	Cattle Breeds – Dairy Type
Week 7	Cattle Breeds – Beef Type

Week 8	Cattle Breeds – Dual Purpose Type
Week 9	Animal Housing
Week 10	Reproduction and Sexual Maturity
Week 11	Pregnancy and Parturition
Week 12	Feeding of Newborns
Week 13	Milking, Mammary System, and Types of Milking Machines
Week 14	Sheep and Goat Breeds
Week 15	Field Visit

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Basics of Sheep and Goat Production by Dr. Jalal Elia Al-Qas	Yes
Recommended Texts	Principles of Animal Production. Najeeb Tawfiq Ghazal and others 1979 University of Mosul	Yes
Websites	https://www.fao.org/animal-production/ar	

Grading Scheme

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 – 49)	F – Fail	راسب	(0-44)	Considerable amount of work required

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

Module 5

Code	Course/Module Title	ECTS	Semester
AGR127	Mathematics and Statistics	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
This module presents the basic principles of statistics and their applications in scientific research, particularly in agriculture, biology, and related sciences. Topics include data collection, organization, presentation, measures of central tendency and dispersion, probability distributions, hypothesis testing, correlation, regression, and analysis of variance (ANOVA). Students will learn how to use statistical tools and software to analyze and interpret data in support of scientific conclusions and decision-making. The course focuses on practical applications, problem-solving, and understanding the role of statistics in scientific research and industry.			

MODULE DESCRIPTION FORM

Module Information				
Module Title	Mathematics and Statistics		Module Delivery	
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	AGR1101			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery	2	
Administering Department	Food Science	College	College of Agriculture	
Module Leader	Prof. Dr. Hassan Hadi Fara	e-mail	nraheem@uowasit.edu.iq	

Module Leader's Acad. Title	Assist. Professor	Module Leader's Qualification	PhD
Module Tutor	Msc. Sara Ali Husain	e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/11/2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1 . Providing students with theoretical and practical scientific knowledge in the field of statistics. 2. The ability to collect and classify data. 3. The ability to measure the degree of relationship between variables 4. Providing students with the skills required in field management and its impact on field work.
Module Learning Outcomes	Learning outcomes for teaching the principles of statistics to first-year students in colleges of agriculture include: 1. Basic Concepts: * Definition of statistics and its importance in agriculture. * Understanding data types (quantitative, qualitative) and their sources. 2. Data Analysis: * Organizing and presenting data using tables and graphs. * Calculating statistical measures such as mean, median, and standard deviation. 3. Probability Distributions: * Understanding normal distributions and statistical inference. * Applying probability in analyzing agricultural data. 4. Statistical Inference: * Understanding statistical hypotheses and their tests (such as the t-test, chi-square test). * Interpreting statistical results and making decisions based on them. 5. Agricultural Applications: * Using statistics to analyze crop and livestock experiments. * Applying statistical methods to improve agricultural production.
Indicative Contents	The syllabus for the Principles of Statistics course for students in colleges of agriculture includes the following topics: 1. Introduction to Statistics:

	• Definition of statistics and its importance in agriculture. • Types of data (quantitative, qualitative) and their sources. • Levels of measurement (nominal, ordinal, interval, relative). 2. Data Presentation and Analysis: • Organizing data in frequency tables. • Representing data graphically (histograms, columns, circles, lines). • Calculating descriptive measures (mean, median, mode, range, variance, standard deviation). 3. Probability: • Introduction to probability theory. • Probability distributions (normal distribution, binomial distribution). • Applications of probability in agriculture. 4. Statistical Distributions :The normal distribution and its properties. • Other distributions relevant to agriculture (such as the Poisson distribution). 5. Statistical inference: • Estimating parameters (point estimate, confidence intervals). • Statistical hypothesis testing (t-test, Z-test, chi-square test). • Analysis of variance (ANOVA). 6. Correlation and regression: • Analyzing the correlation between variables. • The simple linear regression model and its applications in agriculture
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Learning and Teaching Strategies	
Strategies	1. Scaffolded Learning: • Breaking down statistical concepts into small, sequential steps. • Starting with basic concepts (such as mean and variance) and progressing to more complex concepts (such as regression and analysis of variance). • Presenting simple examples initially and gradually increasing complexity. 2. Intensive Hands-On Practice: • Allocating a significant portion of lecture time to solving statistical exercises step-by-step. • Assigning students to complete large sets of homework exercises to reinforce understanding. • Using real or quasi-real data from the agricultural field to apply concepts. 3. Problem-Based Learning: • Presenting realistic statistical problems that require the application of mathematical and statistical concepts. • Encouraging students to work individually or in groups to find solutions. • Discussing solutions in class and pointing out common mistakes.

	4. Visual and Graphical Learning: • Use graphs and charts to illustrate abstract concepts (such as normal distribution and correlation). • Teach students how to create graphs manually and using software. • Demonstrate how to interpret graphs in an agricultural context. 5. Repetition and Practice: • Repeat key concepts periodically to ensure they are consolidated. • Provide a wide variety of exercises (theoretical and practical). • Encourage students to complete additional exercises outside of class. 6. Example-Based Learning: • Provide detailed practical examples of each statistical concept. • Demonstrate how each concept is applied in an agricultural context (such as crop or livestock data analysis). • Encourage students to analyze additional examples on their own. 7. Collaborative Learning: • Divide students into small groups to complete complex exercises. • Encourage students to explain concepts to each other. • Organize group study sessions outside of class. 8. Continuous Formative Assessment: • Periodic quizzes to assess students' understanding of concepts. • Weekly assignments that include solving statistical exercises. • Progress reports on student progress. 9. Real-Data Learning: • Use real data from agricultural experiments or scientific research. • Teach students how to clean and analyze data. • Demonstrate how to interpret results in an agricultural context.
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Student Workload (SWL)			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5
Unstructured SWL (h/sem)	72	Unstructured SWL (h/w)	3
Total SWL (h/sem)	150		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	15	LO #1 - #14
	Assignments	1	10% (10)	6	LO #1 - #5

Summative assessment	Projects / Lab.	1	10% (10)	7	LO #1 - #6
	Report	1	10%	14	LO #1 - #14
	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to Statistics
Week 2	Statistical Symbols
Week 3	Data Presentation and Summarization
Week 4	Frequency Distribution of Tables and Data
Week 5	Measures of Centering
Week 6	Measures of Dispersion
Week 7	Hypothesis Testing
Week 8	Normal Distribution
Week 9	t-Test
Week 10	Z-Test
Week 11	F-Test
Week 12	Simple Linear Correlation
Week 13	Simple Linear Regression
Week 14	Probability Theory
Week 15	Midterm Exam

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Applications of descriptive and quantitative measures
Week 2	Applications of statistical symbols
Week 3	Exercises of frequency tables and graphic representation
Week 4	Exercises of measures of centering
Week 5	Exercises of dispersion

Week 6	Applications of normal graphic distributions
Week 7	Exercises of t-tests
Week 8	Exercises of z-tests
Week 9	Exercises of the F-test
Week 10	Exercises of correlation
Week 11	Exercises of linear regression
Week 12	Exercises of probability
Week 13	Data collection and analysis
Week 14	ANOVA test
Week 15	Interval test

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Introduction to Statistics, written by Dr. Khashe Mahmoud Al-Rawi, College of Agriculture and Forestry, University of Mosul, 1989	Yes
Recommended Texts	)Reliable scientific journals, scientific reports.(	No
Websites		

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

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

Module 6

Code	Course/Module Title	ECTS	Semester
SC1102	Principles of soil Sciences	6	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
The teaching of soil science to first-year students in the Field Crops Department at the College of Agriculture aims to provide them with the scientific fundamentals of soil, including its physical and chemical properties, and to link these characteristics to crop productivity, enabling them to make informed decisions in selecting suitable land for cultivation. The course also focuses on developing practical skills through laboratory and field analysis of soil samples, as well as raising environmental awareness about the importance of preserving soil from degradation to ensure the sustainability of agricultural resources.			

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Principles of soil Sciences		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	CS1102			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery	2	
Administering Department	Department of Field Crops Sciences	College	College of Agriculture	

Module Leader	Dr.Muntaded Humadi Isaa	e-mail	mhumadi@uowasit.edu.iq
Module Leader's Acad. Title	Asstant professor	Module Leader's Qualification	PhD
Module Tutor	Msc. Yahya Radi	e-mail	yradi@uowasit.edu.iq
Peer Reviewer Name	Nabil Raheem Lahmod	e-mail	E-mail
Scientific Committee Approval Date	15/ 11 /2025	Version Number	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. Knowledge and Understanding *Provide a comprehensive definition of soil and its components (mineral, organic, and soil solution), and understand its role in supporting plant life and human society. *Recognize the integration of soil science with other disciplines: physics, chemistry, biology, classification, and plant nutrition. *Understand the factors affecting soil formation (parent material, climate, living organisms, topography, and time). 2. Practical Skills *Develop the ability to collect soil samples and analyze their morphological properties (texture, structure, color), and measure physical and chemical properties such as moisture, pH, salinity, and porosity. *Apply skills to classify soils according to recognized classification systems (such as Soil Taxonomy). *Evaluate soil quality at local and global levels and interpret the impact of natural and
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	human factors on it. 3. Application and Sustainable Development *Link soil characteristics to appropriate crop choices to ensure sustainable and economically viable agricultural production. *Understand the scientific foundations of soil management (e.g., adding organic matter, crop rotation, erosion control) to enhance soil health and productivity in the long term. *Apply basic concepts (physical, chemical, biological) to make evidence-based decisions regarding soil use and management.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Scientific definition and characterization of soil components and their properties. 2. Conducting field and laboratory analyses to measure physical, chemical, and biological properties. 3. Scientifically classifying soils and applying classification results in real-world decision-making. 4. Assessing soil suitability for agriculture or other uses and adopting sustainable management practices. 5. Scientific communication: preparing accurate reports and presenting results in an academic manner.
Indicative Contents المحتويات الإرشادية	1. Introduction and Definitions *What is soil?: Definition of soil including its mineral and organic components, water, air, and its importance for plants and humans. *The relationship of soil science with other disciplines: Physics, chemistry, biology, geology, and environmental sciences. 2. Soil Formation (Pedogenesis) *Forming factors: Parent material, climate, living organisms, topography, and time. *Formation processes: Physical weathering (e.g., thermal disintegration) and chemical weathering (e.g., oxidation). 3. Physical Properties *Morphology and field appearance: Color, texture, structure, density, and

	porosity. *Texture and composition: Proportions of sand, silt, and clay and their effects on aeration and porosity. *Moisture content and patterns: Saturation point, field capacity, and plant-available water. *Temperature and air in soil: Ventilation, concentrations of oxygen and carbon dioxide, and often water vapor. 4. Chemical Properties *pH, cation exchange capacity (CEC), salinity, and base saturation percentage. *Soil nutrient metabolism: Elements such as nitrogen, phosphorus, and potassium; organic and synthetic fertilization. 5. Biological Properties *Soil organisms: Bacteria, fungi, protozoa, and earthworms. *Role of microorganisms: Organic matter decomposition, structure enhancement, nitrogen fixation, and disease suppression. 6. Soil Classification and Survey *Classification systems: Such as Soil Taxonomy, and stratified and spatial surveys for identifying suitable soil types. *Accessing soil data: Using maps and reports to support future land use decisions. 7. Soil Management and Conservation *Management practices: Fertilization, crop rotation, tillage, water management, and conservation tillage. *Conservation and sustainability: Erosion prevention, soil reclamation, forest suitability, and environmentally sustainable use. *Soil analysis: Laboratory and field methods for sampling and interpreting results Proposed Course Structure (Weekly / Hourly Breakdown) Introduction and Definitions
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	*Soil Formation and Development Factors *Physical Properties of Soil *Chemical Properties of Soil - Biological Properties of Soil *Soil Classification and Survey *Fertilization and Nutrient Management *Irrigation and Soil Water Management *Salinity Control and Chemical Issues *Soil Modeling and Sustainability *Practical Applications: Field Models and Reports *Review, Recap, and Final Examination *Teaching and Assessment Methods *Lectures combined with field and laboratory exercises *Applied reports, quizzes, homework assignments, and final exams *Laboratory/field projects: Sample analysis, map preparation, and recommendations for agricultural practices for planning.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Educational Pedagogical Principles *Integration of Traditional and Active Learning: *Constructive lectures (direct instruction) provide the essential theoretical foundation, especially for first-year students. *Active, engaging, digital, and collaborative learning (e.g., Problem-Based Learning (PBL), conceptual packages, project-based learning) enhances applied understanding and deeper comprehension.

	*Linking Theory to Practical Application: *Fieldwork (e.g., soil sampling, analysis) and laboratory reports help reinforce theoretical concepts through hands-on experience. *Interdisciplinary Strategy: *Integrates physics, chemistry, biology, and geology into a unified, cohesive content to support a systems-level understanding of soil. 2. Supportive Tools and Techniques *Teacher-designed resources and guides (e.g., SSSA, NRCS): Provide ready-to-use lesson plans, lab reference cards, and interactive activities. *Use of apps and formative assessment tools: Short quizzes to assess understanding and surveys that enable immediate instructional adjustments. *Individual and group assessment: Through observation during group activities, individual reports, and collaborative evaluations. 3. Evaluation and Development Mechanism *Team formation and task distribution: In PBL activities, students tackle a specific challenge in committees of 4–6 members. *Assessment tools: Performance checklists, individual feedback, and instructor evaluation of teamwork processes. *Comprehensive assessment: Includes a written exam, a field or lab-based project, and an oral presentation at the end of the semester. 4. Advantages of the Proposed Learning Strategy * Ensures a smooth transition from theoretical knowledge to practical application. * Develops critical thinking, problem-solving, and teamwork skills. * Prepares students for the job market through exposure to real-world field and laboratory experiences. * Allows the use of diverse and modern resources that support educational goals.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5

الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus)	
المناهج الاسبوعي النظري	
	Material Covered
Week 1	Introduction and Definitions: Concept of soil, its components, and its importance as an ecosystem and its role in life
Week 2	Soil Particles and Structure: Particle size, and the relationship between structural

	composition and soil properties.
Week 3	Weathering and Erosion: From rocks to soil: the role of natural factors in soil formation.
Week 4	Parent Material and Physical Properties of Soil :Texture, color, density, and porosity.
Week 5	Bulk and Particle Density: Numerical values and their impact on agriculture and irrigation.
Week 6	Soil Temperature and Water: Moisture distribution, drainage, saturation point, and field capacity.
Week 7	First Monthly Exam
Week 8	Water Balance, Drainage, and Erosion: Water management and the impacts of erosion.
Week 9	Soil Acidity and Salinity (pH): Measuring pH and methods of adjustment (neutralization); chemical foundations.
Week 10	Cation Exchange Capacity (CEC): Exchange mechanisms and importance in soil fertility.
Week 11	Chemical Soil Amendments: Adjusting acidity and alkalinity; fertilizer management.
Week 12	Microorganisms and Soil Microbiology: Their role in the soil and organic matter recycling.
Week 13	Soil Classification and Survey: Classification systems (e.g., Soil Taxonomy), and their application in Iraq.
Week 14	Soil Management and Conservation: Reclamation, crop rotation, and erosion control.
Week 15	Second Monthly Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Laboratory Safety Instructions and Equipment Familiarization: Introduction to safety rules and identification of laboratory tools used in soil analysis.

Week 2	Soil Sampling and Preparation: Methods for collecting soil samples and preparing them for lab testing (drying, sieving, storage).
Week 3	Soil Texture (Mechanical Analysis) – Hydrometer Method: Determining the percentage of sand, silt, and clay in the soil.
Week 4	Soil Texture – Hand Feel Method Identifying :soil texture by hand using simple tactile tests.
Week 5	Bulk Density and Particle Density Determination: Calculating soil density to estimate pore space.
Week 6	Porosity and Soil Water Retention: Calculating porosity and assessing the soil's water-holding capacity.
Week 7	First Monthly Exam
Week 8	Soil pH Determination: Using a pH meter to measure the acidity or alkalinity of soil.
Week 9	Electrical Conductivity (EC): Measuring soil salinity and its effect on plant growth.
Week 10	Estimation of Soil Organic Matter: Using the burning method or chemical methods such as Walkley-Black.
Week 11	Estimation of Carbonates and Gypsum: Determining calcium carbonate and gypsum content in soil.
Week 12	Soil Nitrogen Analysis: Using chemical methods to estimate the concentration of available nitrogen.
Week 13	Available Phosphorus Determination: Using the Olsen or Bray method, depending on soil type.
Week 14	Available Potassium Estimation: Using chemical extraction and measuring with a flame photometer.
Week 15	Second Monthly Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals of Soil Science	نعم

Recommended Texts	Published Research	كل
Websites		

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

Module 6

Code	Course/Module Title	ECTS	Semester
AGR1102	Agriculture Extension	2	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	17

Description
Define agricultural extension and its importance in the agricultural sector. Apply effective communication skills and extension teaching methods. Analyze rural community problems and propose extension solutions. Design a simple agricultural extension program tailored to farmers' needs. Evaluate the impact of extension activities on technology adoption.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
Module Title	Agricultural Extension		Module Delivery	
Module Type	S		Theory Lecture Lab Tutorial Practical Seminar	
Module Code	AGR1102			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGx11 1	2		
Administering Department	Field Crops		College of Agriculture, Wasit University	
Module Leader	Dr. Hakeem S.Abed			@uowasit.edu.iq
Module Leader's Acad. Title				Ph.D.
Module Tutor				tbd@uowasit.edu.iq
Peer Reviewer Name				tbd@uowasit.edu.iq
Scientific Committee Approval Date				1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NON	Semester	NON
Co-requisites module	NON	Semester	NON

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	To introduce students to the concept and importance of agricultural extension. * To develop students' communication and interaction skills with farmers. * To enable students to plan, implement, and evaluate extension programs. * To enhance students' understanding of farmers' behavior and innovation adoption processes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Part 1: Fundamentals of Agricultural Extension (Concept, philosophy, objectives). Part 2: Communication in Extension (Elements, barriers, feedback). Part 3: Extension Teaching Methods (Individual, group, mass methods). Part 4: Adoption and Diffusion of Innovations (Stages, categories of adopters). Part 5: Extension Program Planning and Evaluation
Indicative Contents المحتويات الإرشادية	. Interactive lectures and class discussions. 2. Case studies and problem-solving scenarios. 3. Field visits to agricultural extension centers. 4. Role-playing and communication skills practice. 5. Small group projects and presentations

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	Interactive lectures: To present basic concepts and theories in a simplified and clear manner. Brainstorming and classroom discussions: To stimulate critical thinking and promote the exchange of ideas.

	• Case studies: To analyze real-life situations related to human rights and democracy. • Group work: To develop a spirit of cooperation and dialogue among students. • Student presentations: To enhance communication and research skills.
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Student Workload (SWL)			
Structured SWL (h/sem)	33	Structured SWL (h/w) ¹	4
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w) ¹	2.67
Total SWL (h/sem)	50		

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (5)	15	LO #1 - #1,2
	Assignments	3	15% (5)	6	LO #1 - #5
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Week	Introduction to Agricultural Extension: Concept, philosophy, and objectives.

Week 1	Historical development of agricultural extension globally and in Iraq.
Week 2	The role of agricultural extension in rural and agricultural development.
Week 3	Communication in Extension: Concept, elements, and models.
Week 4	Communication barriers and methods to overcome them.
Week 5	Extension Teaching Methods: Classification and selection criteria.
Week 6	Individual and group extension methods (farm visits, meetings, demonstrations).
Week 7	Mass extension methods (radio, television, publications, internet).
Week 8	Adoption and Diffusion of Innovations: Concepts and stages of the adoption process.
Week 9	Factors affecting the adoption of agricultural technologies.
Week 10	Categories of adopters and their characteristics.
Week 11	Agricultural Extension Program Planning: Principles and steps.
Week 12	Implementation of extension programs and community participation.
Week 13	Evaluation of Agricultural Extension Programs: Importance and types.
Week 14	Current challenges and future trends in agricultural extension.
Week 15	

Learning and Teaching Resources		
	Swanson, B. E. (Ed.). (1984). Agricultural Extension: A Reference Manual. FAO.	Yes
Required Texts	Van den Ban, A. W., & Hawkins, H. S. (1996). Agricultural Extension. Blackwell Science.	Yes
Recommended Texts	FAO Extension Publications (www.fao.org) Global Forum for Rural Advisory Services (www.g-fras.org)	
Websites		

Grading Scheme

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

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

Module 1

Code	Course/Module Title	ECTS	Semester
WU01	Arabic Language	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	0	33	17
Description			
This course aims to strengthen students' skills in the Arabic language, focusing on improving their abilities in reading, writing, grammar, and comprehension. It provides a foundation in classical and modern standard Arabic, with attention to sentence structure, correct usage, punctuation, and writing techniques. The course also introduces students to selected texts from Arabic literature, culture, and heritage, enhancing their appreciation for the richness and depth of the Arabic language. Students will practice writing essays, analyzing texts, and applying grammatical rules accurately,			

enabling them to communicate effectively in academic and professional contexts.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Arabic Language		Module Delivery
Module Type	Basic		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	WU01		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	
Administering Department	Field crop Dept.	College	College of Agriculture
Module Leader	Prof. Dr. Zaman Thamer Hasansst. P Asst. Lecturer Anwar Mahan Sarhan		e-mail zthamer@uowasit.edu.iq anwarmahaan@gmail.com
Module Leader's Acad. Title	Assist. Lecturer	Module Leader's Qualification	Master degree
Module Tutor		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/11/2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1. Developing the student's core language skills: listening, speaking, reading, and writing.
Module Learning Outcomes	1. Enhancing the ability to express oneself orally and in writing in correct and proper Arabic.
Indicative Contents	Expanding the student's vocabulary through the study of new words and structures.

Learning and Teaching Strategies

Strategies	- Interactive lectures to explain linguistic and literary concepts. - Group work through class discussions and collaborative activities. - Written exercises to develop writing and grammar skills. - Oral presentations to enhance speaking abilities and self-confidence. - Analytical reading of various texts to understand deeper meanings. - Project-based learning to apply knowledge in real-world contexts. - Brainstorming for idea generation and creative expression. - Self-assessment and feedback for performance improvement and continuous learning. - Field visits or meetings with writers to connect content with real life (if applicable). - Use of multimedia tools such as educational videos and presentations to enrich the content.
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Student Workload (SWL)

Structured SWL (h/sem)	30	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1
Total SWL (h/sem)	50		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	15	LO #1 - #14
	Onset assignments	1	10% (10)	14	LO #8 - #13
	Online assignments	1	10% (10)	6	LO #1 - #5
	Reports	1	10% (10)	5	LO #1 - #4
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Getting acquainted with the history of the Arabic language, and its sections: first: grammar: explaining the payments from the Beginner, the news, the name of Kan and her sisters, and the participation of students in applying it
Week 2	Complete the explanation of the payments from the news of Kan, her sisters and the actor The actor's deputy will activate the practical application
Week 3	Explanation of the postulates of the effect and absolute effect
Week 4	Complete the explanation of the positions of effect and effect for him and for him
Week 5	The use of competition and the spirit of the group in explaining the subject of the case and raising some questions about the subject of the exception
Week 6	Using the question-and-answer method by presenting the topic of discrimination and continuing to present the subject of the caller
Week 7	Getting into the topic of prepositions: explaining the importance of prepositions from the genitive by preposition and genitive by annexation
Week 8	Explanation of the topic of minions, from participle, emphasis and substitution
Week 9	Complete the explanation of the Minions of the kindness of the pattern
Week 10	Entering a new topic, namely the number, and knowing its provisions
Week 11	Second: to identify the exchange science and the exchange balance by applying it in practice
Week 12	Explain the subject of the correct verb and the difference between it and the verb The sufferer
Week 13	Touch on the subject of abstract verbs and more, explain the subject of verb attribution
Week 14	Third: spelling: explain the topic of punctuation marks and find out their importance in writing

	research and University theses
Week 15	Recognize the importance of drawing the Hamza, writing the TA and applying

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Arabic language book, Dr. Rafid Sabah Altimimy	Yes
Recommended Texts	Journals and reports, online references, internet.	No

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

Module 7

Code	Course/Module Title	ECTS	Semester
FC1101	Principles of Field Crops	6	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			

The objective of teaching the *Principles of Field Crops* course to students in the Faculty of Agriculture is to provide them with the scientific and practical foundations necessary to understand the production of major field crops, such as cereals, legumes, and oil crops. It also aims to enhance their knowledge of the factors affecting crop growth, such as soil, climate, and irrigation, and how to manage them to increase productivity. Additionally, the course seeks to familiarize students with the importance of field crops in achieving food security and economic development, while preparing them to develop their skills in agricultural research and innovation. Finally, it helps qualify students to apply modern techniques in sustainable agriculture, enhancing their professional competence in the job market.

MODULE DESCRIPTION FORM FOR PRINCIPLES OF CROP SCIENCES

Module Information معلومات المادة الدراسية				
Module Title	Principles of Field crops		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	FC1101			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGx1	Semester of Delivery	2	
Administering Department	Field Crop Sciences Dep.	College	Agriculture	
Module Leader	Dr. Hussien Ibrahim Almtar	e-mail	htarish@uowasit.edu.iq	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PhD	
Module Tutor	Mrs. Hadeel Hamza Ali Mrs. Ali Basher Hadi	A	@uowasit.edu.iq	
Peer Reviewer Name	Dr. hussien Ibrahim Almtarfi	e-mail	htarish@uowasit.edu.iq	
Scientific Committee Approval	1/ 3 /2025	Version Number	1.0	

Date			
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Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1- Course description: study of Agronomy and its branches, describe field crop characteristics, report of origin of cultivated plants, classification and importance. 2- Field crop classification according to field utilization, Botanical classification, Date of planting, Duration... 3- Botanical description of major field crop families. 4- Environmental factors and its relationship with field crops growth: Light (effected factors in light intensity, photoperiodism, effect of the light on the plants and plant adaptation for light factor). 5- Temperature (The effect of temperature on field crops, damage of high temperature on field crops, World Thermal area, and the. relations between temperature and light). 6- Water (division plants according to water availability, water use efficiency, effect of water deficit, tolerance to drought). 7- Soil (compounds, soil salinity and its damage on. crops), study of weeds, classification of weeds according to life cycle and methods of weed control). 8- Crop rotation (conditions of crop rotation design, stages of design crop rotation with examples). Field crops. 9- breeding (objectives of plant breeders, variety, adaptation, methods of field crops breeding)
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes for the course on Principles of Field Crops can include the following points : 1- Understanding the basics of crop science: becoming acquainted individuals with the fundamental principles of crop science, including genetics, ecology, and soil science . 2- Knowledge of crop types: distinguishing between food crops, fodder crops, and

	industrial crops, and understanding the characteristics of each type . 3- Agricultural methods: Understanding different farming methods, including traditional farming, organic farming, and sustainable farming practices . 4- Crop Management: Developing crop management skills, including planning, scheduling, monitoring, and analyzing agricultural data . 5- Modern technologies: Familiarizing with modern technologies in crop cultivation, such as precision agriculture and biotechnology . 6- Pest and disease control: Understanding strategies for controlling pests and diseases that affect crops, including chemical and biological methods . 7- Productivity assessment: the ability to evaluate productivity and crop quality, and use appropriate performance indicators . 8- Environmental impacts: Understanding the environmental impacts of crop cultivation, including sustainable resource use and climate change . 9 - Agricultural Research: Enhancing research skills and analyzing information related to crops and the latest developments in this field.
Indicative Contents المحتويات الإرشادية	Introduction to Crop Science: • Definition of Crop Science and its Importance. • The history of agriculture and its development. Types of crops: • Food crops (grains, vegetables, fruits). • Fodder crops. • Industrial crops (such as cotton, tobacco). Soil Science: • Soil composition and types. • The effect of soil on crop growth. Agricultural ecology: • Climatic factors and their impact on crops. • The relationships between crops and the surrounding environment. Farming methods: • Traditional farming methods. • Organic farming and sustainable agriculture. • Precision agriculture. Crop management: • Crop planting planning. • Scheduling planting and crop care. • Monitoring crops and assessing productivity. Pest and disease control: • Identifying common pests and diseases. • Pest control strategies (chemical and biological). Modern agricultural technologies:

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

1. Learning based on the theoretical understanding of the subject matter: Learning based on the theoretical understanding of the subject matter:
Teaching the student to attempt to understand the theoretical aspect of the subject or idea and to anticipate the outcome before practical application.
- Employing scientific and knowledge-based foundations in the correct theoretical understanding in the field of field crops.
2. Experiential learning: Experiential learning:
- Conducting practical experiments to study the germination and growth of field crops.
3. Learning based on the collaborative application of ideas: Learning based on the collaborative application of ideas:
- Assigning students in groups to implement a specific idea of field crop cultivation.
- Encouraging students to research and work within research groups.
4. Learning based on the exchange of ideas and innovative solutions in problem-solving: Learning based on the exchange of ideas and innovative solutions in problem-solving:
Learn how to face the challenge with an idea and then an effective solution to solve the problem in the least time, cost, and safely.
- Exchanging ideas with others and utilizing them in the service of scientific research in the field of crop production management.
5. Multimedia-supported education: Multimedia-supported education:
- Using educational videos and simulations to explain various processes.
- Displaying video clips to illustrate the physiological processes occurring in the plant.
6. Self-directed and independent learning: Self-directed and independent learning:
Encouraging students to engage in research and self-study using scientific references and specialized articles.
7. Learning based on the results of previous scientific research: Learning based on the results of previous scientific research.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction about field crops, development and origin
Week 2	Classification of crops depending on (Botanical, Sowing Date, live cycle Etc .)
Week 3	Ecological factors and their relationship with growth, Light. , Photoperiodism
Week 4	Temperature, Maximum, minimum and optimum temp. and its effects of crops
Week 5	Soil Factors Structure ,Texture, Soil Reaction, Saline Soil
Week 6	1 st Exam.
Week 7	Water and its role. For plant including : 1- Hydrophytes. 2 : - Mesophytes. 3 - : xerophytes. 4 : - field Capacity
Week 8	Weed and its Control. Methods of Weed Control .
Week 9	Grain Grading
Week 10	Crop Rotation
Week 11	2 nd exam plus drought
Week 12	Irrigation Methods
Week 13	Crop Management & Soil Management(
Week 14	Breeding and Improving Field Crops
Week 15	Effect of biological Factors on Crop Production
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	Diagnosis of field crop seeds based on external appearance: size, shape, color, luster, taste, etc. etc.
Week 2	Seed diagnosis based on physiological traits, diagnosis based on chemical specifications.
Week 3	Germination tests: Soil germination. Laboratory germination types of seed beds (seedling trays). How to calculate the germination rate
Week 4	Calculating germination rate / germination speed
Week 5	Comparison between field germination and laboratory germination
Week 6	Calculating the amount of seeds per unit area
Week 7	Practical exam / Cultivation of several crops using different methods
Week 8	Types of fertilizers and methods for calculating fertilizer quantities based on their concentrations
Week 9	Methods of adding fertilizers. Fertilizer application schedules
Week 10	Practical training for grading seed samples
Week 11	Cleanliness and purity tests. And preparing the forms
Week 12	Field visit to nearby crop fields to learn about the plants
Week 13	Watching soil preparation equipment and crop service operations
Week 14	Diagnosis of common weeds in crop fields, training on hybridization and selection techniques
Week 15	Allelopathy / symbiosis / Competition

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1: -Principles of Field Crops, Dr .M . h .Al – Ansary etal.1980. Ministry of Higher Education, book house . Iraq.	yes

	2 : - Field Crop Production and Improving , M . H . Al – Ansary 1981.Iraq – book house press – Mousil .. 3 : - Understanding crop production , H . J . Atea and K . M . Wehaib. 1991 .Ministry of Higher Education and Secientific Research . Iraq .. 4 : - Cereals and Legumes crops , K . L . Al – Khfagy . 2011 . Baghdad University.	
Recommended Texts	Crop Research, Crop Physiology	yes
Websites		

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

Module Information
معلومات المادة الدراسية

Module Title	Principles of Agricultural Economics and Marketing			Module Delivery	
Module Type	C			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	FC1204				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		UGx1	Semester of Delivery		1
Administering Department		Department of Field crop Sciences	College	College of Agriculture	
Module Leader	MSc Sara Ali Hussein Msc. Raed Munim Shaker		e-mail	sahussain@uowasit.edu.iq	
Module Leader’s Acad. Title		Assistant teacher	Module Leader’s Qualification		Master's
Module Tutor			e-mail		
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		1/03/2025	Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To introduce students to the importance of the relationship between agricultural economics and the general economy. 2. To enable students to know and understand the most important characteristics and

	objectives of studying agricultural economics and its impact on achieving agricultural development. 3. To provide a description of the characteristics and determinants of supply and demand for developing these resources and the means necessary to design a sound agricultural water policy. 4. To provide an economic analysis of production theories, focusing on the optimal use of agricultural resources, their direct and indirect uses, and the factors affecting the water market. 5. To provide a description of the characteristics and stages of the marketing process and its benefits, to study the importance of transportation methods and their types, and to identify the difference between traditional and electronic marketing.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A . Cognitive Objectives: 1. To familiarize students with the economic importance of agricultural economics and its role in achieving food security 2. To identify the factors that determine demand and the quantities demanded and supplied 3. To explain the economic concepts related to the relationship between quantities produced and price (elasticities). 4. To explain the theory of production, identify types of production, and explain the effects of the law of diminishing returns 5. To study costs and their types, whether fixed or variable, and the averages of these costs. 6. To address the concept of revenue and its relationship to prices and quantities, while

	considering the importance of agricultural marketing. B. Skills Objectives of the Course: . To analyze production data using data and graphs. 2. Applying theoretical economic concepts, particularly agricultural economics, to identify economic problems and optimize resource utilization (factors of production) at the lowest cost, with the aim of guiding agriculture towards achieving food security. behavior and maximizing consumer satisfaction.
Indicative Contents المحتويات الإرشادية	1The course aims to introduce students to the fundamental concepts of agricultural economics and the analysis of supply and demand. 2- It covers the management of agricultural resources, prices, and agricultural markets. 3- It introduces students to methods of marketing agricultural products. 4- It helps students understand consumer and producer behavior. 5- It introduces students to agricultural marketing, its methods, and the analysis of marketing problems

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The fundamental theoretical knowledge will be presented through interactive lectures supported by multimedia presentations, illustrations, and real-world examples from the agricultural sector. These examples will demonstrate the relationship between goods and services, specifically their prices, and the quantities supplied, demanded, sold, and produced Student Presentations and Reports Each student will be encouraged to present short reports or reflections based on field experiments, breed comparisons, or feeding plans for different animal species.

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Student Workload (SWL)			
The student's academic load is calculated as 15 weeks.			
Structured SWL (h/sem) Regular student load during the semester	33	Structured SWL (h/w) Regular weekly student workload	5
Unstructured SWL (h/sem) Irregular student load during the semester	17	Unstructured SWL (h/w) Irregular student study load per week	8
Total SWL (h/sem) The student's total academic load during the semester	100		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	6	LO #1 - #14
	Assignments	1	10% (10)	15	LO #1 - #5
	Projects /	1	10% (10)	7	LO #1 - #6
	Report	1	10%	15	LO #1 - #14
Summative assessment	Midterm Exam	2hr	10% (10)	16	LO #1 - #7
	Final Exam	3hr	50% (50)	-	All
Total assessment			100% (100)		

	Marks)		
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Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	dedicated to studying economic theory and the relationship between agricultural economics and general economics.
Week 2	The law of demand, types of demand, and determinants of demand
Week 3	studying the elasticity of demand
Week 4	Studying the law of supply and its determinants
Week 5	Monthly exam
Week 6	The concept of production / A study of types of production and their relationship to factors of production
Week 7	Explaining the concept of diminishing returns and its impact on the farmer and the production unit
Week 8	A graphic explanation and illustration of the effects and stages of diminishing yield.
Week 9	Addressing the concept of cost theory
Week 10	Study of fixed and variable costs
Week 11	Monthly exam
Week 12	Studying revenues and their types, and clarifying the relationship between costs and prices using construction fees.
Week 13	A study of agricultural marketing, the stages of the marketing process, and the importance of marketing.
Week 14	Addressing the importance of transportation methods and the added benefit to the marketing process
Week 15	General review of lectures
Week 1	dedicated to studying economic theory and the relationship between agricultural economics and general

	economics.
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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Principles of Economics - Dr. Karim Mahdi Al-Hasnawi (College of Administration and Economics - University of Baghdad) 2012 Principles of Agricultural Economics - Dr. Abdul Wahab Matar Al-Dahri (Main References) (Sources) (College of Agriculture - University of Baghdad - 1998) *Principles of Agricultural Economics - Dr. Salem Tawfiq Al-Najfi College of Administration and Economics - University of Mosul - 2001	yes
Recommended Texts	)Reliable scientific journals, scientific reports.(	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D -	متوسط	60 - 69	Fair but with major shortcomings

	Satisfactory			
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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

Module 10

Code	Course/Module Title	ECTS	Semester
WOU02	Computer science	3	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	48	27
Description			
This course introduces students to the basic concepts and principles of agricultural economics, focusing on the application of economic theory to the agriculture sector. It explores the economic behavior of individuals, firms, and governments in relation to agricultural production, distribution, and consumption. Topics include supply and demand in agriculture, production economics, farm management, market structures, price analysis, agricultural policy, and resource use in farming. Special emphasis is placed on the role of agriculture in national economic development, food security, and sustainability. Students will learn how to apply economic tools to solve real-world problems in farming, agribusiness, and rural development.			

MODULE DESCRIPTION FORM

Module Information		
Module Title	Computer	Module Delivery

Module Type	B			☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	WOU02				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level		1	Semester of Delivery		1
Administering Department		Field crop	College	College of Agriculture	
Module Leader	M.SC. Karrar Qasim		e-mail	hulafta@uowasit.edu.iq	
Module Leader’s Acad. Title		Assistant Lecturer	Module Leader’s Qualification		PhD
Module Tutor			e-mail		
Peer Reviewer Name		Nabil Raheem	e-mail		
Scientific Committee Approval Date		2025-3- 1	Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Identify the parts of the computer and the function of each part, and identify computer technologies, programs, and applications necessary to work on it and complete work.
Module Learning Outcomes	Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation). Implementing practical lectures through observations and interaction with field or laboratory aspects.
Indicative Contents	Conducting daily quick exams. Evaluating students through the submission of academic reports and oral presentations. Conducting monthly exams. Conducting practical exams. Conducting final exams.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation). Implementing practical lectures through observations and interaction with field or laboratory aspects.

Student Workload (SWL)			
Structured SWL (h/sem)	48	Structured SWL (h/w)	15
Unstructured SWL (h/sem)	27	Unstructured SWL (h/w)	10
Total SWL (h/sem)	75		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Assignments	1	10% (10)	Continuous	1,2,3,4,5,6
	Projects / Lab.	15	10% (10)	Continuous	1,2,3,4,5,6
	Report	1	15% (15)	Continuous	1,2,3,4,5,6,7,8,9,10,11,12,13,14,
	Seminars	1	5% (5)	Continuous	1,2,3,4,5,6
Summative assessment	Midterm Exam	2hr	10% (10)	14	1,2,3,4,5,6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	What is a computer? / Computer features / Computer components / Types of computers
Week 2	Main parts of a personal computer

Week 3	Operating systems and their types
Week 4	Information Network
Week 5	Telephone networks and the computer world
Week 6	Internet
Week 7	Computers in our daily life
Week 8	Insurance, Copyright, and Law
Week 9	Dealing with menus and icons
Week 10	Desktop Quick Menu
Week 11	Windows Explorer
Week 12	Using some add-on programs with Windows
Week 13	How to improve the appearance of screen lines when using flat panel LCD displays or laptops
Week 13	What is the Firewall available in Windows XP and how do I activate it?
Week 14	Dynamic Disk

Learning and Teaching Resources				
	Text			Available in the Library?
Required Texts	Required textbooks: Computer Science textbook ☐ Main references (sources): Office software user guide			Yes
Recommended Texts	☐ Recommended books and references (scientific journals, reports).			Yes
Websites	No			
Grading Scheme				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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Module 11

Code	Course/Module Title	ECTS	Semester
AGR1203	Surveying and Leveling	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	47
Description			
The objective of teaching Surveying and Leveling to first-year students in the Field Crops Department of Agricultural Colleges is to provide them with the basic principles of land measurement and elevation determination, which aids in proper agricultural and irrigation planning. The course also enhances students' understanding of the importance of precise land leveling to improve water use efficiency and distribution. Additionally, it serves as a foundation for modern precision farming techniques and agricultural project management. Finally, it helps develop students' practical skills to apply this knowledge effectively in the field.			

MODULE DESCRIPTION FORM FOR

Surveying and Leveling

Module Information		
معلومات المادة الدراسية		
Module Title	Surveying and Leveling	Module Delivery
Module Type	COR	☒ Theory ☒ Lecture ☒ Lab
Module Code	AGR1203	

		☐ Tutorial ☒ Practical ☐ Seminar	
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGx11	Semester of Delivery	2
Administering Department	Field Crop Sciences Dep.	College	Agriculture
Module Leader	Mrs. Ali malik hassan	e-mail	gl819@uowasit.edu.iq
Module Leader's Acad. Title	Assiste Lecturer	Module Leader's Qualification	master
Module Tutor	Mrs. Azher Jabaar Ibraheem	e-mail	azjabar@uowasit.edu.iq
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	//2025	Version Number	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	Understanding the Basic Principles of Surveying: Recognizing the fundamental concepts of surveying and its types. Distinguishing between plane surveying and geodetic surveying. Familiarization with Surveying Tools and Instruments: Learning about instruments such as the compass, level, theodolite, and measuring tape. Understanding how to use and maintain these instruments. Mastering the Measurement of Distances and Angles: Learning methods for measuring horizontal and vertical distances. Learning how to measure horizontal and vertical angles. Applying Setting-Out and Field Marking Techniques:
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	Learning how to set out buildings, roads, and pipelines on the ground. Accurately transferring engineering designs from paper to the field. 5. Conducting Surveying and Map Drawing: Carrying out basic topographic survey tasks. Drawing maps using field data. 6. Processing Surveying Data: Calculating areas, coordinates, and deviations. Using adjustment methods to minimize errors. 7. Developing Practical and Field Skills: Acquiring teamwork skills in the field. Training on note-taking and preparing survey reports. 8. Introduction to Modern Surveying Techniques: Providing an introduction to the use of electronic instruments such as GPS and levels. Connecting the basics to modern techniques in engineering work.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Learning Outcomes for the Surveying and Levelling Course may include the following points: □ Cognitive Learning Outcomes: 1. Defines the basic concepts of surveying and its types. 2. Distinguishes between different types of surveying instruments and their uses. 3. Explains the principles of plane measurement, angles, and distances. □ Skill-Based Learning Outcomes: 4. Performs distance and angle measurements using traditional surveying tools. 5. Accurately uses instruments such as the level, theodolite, and compass in surveying tasks. 6. Draws surveying maps and topographic data based on field measurements. 7. Calculates areas, coordinates, and deviations using both manual methods and software. □ Practical Learning Outcomes: 8. Applies surveying layout methods for real-world projects. 9. Conducts surveying and layout operations for simple projects (such as land plots, roads, and buildings). 10. Prepares accurate field reports that include surveying data and results. □ Mental / Analytical Learning Outcomes: 11. Evaluates surveying errors and analyzes their sources. 12. Compares different measurement methods in terms of accuracy and suitability. 13. Selects the most appropriate method or instrument based on the project type

	and site conditions.
Indicative Contents المحتويات الإرشادية	Introduction to Surveying: • Definition of surveying and its importance. • Main applications of surveying. Types of Surveying Measurement Units: • Linear measurement units. • Angular measurement units. Tools Used in Surveying: • Measuring tape and its types. • Methods of using the measuring tape. Areas and Shapes: • Areas of regular shapes. • Areas of irregular shapes. Leveling Science: • Definition of leveling and its importance. • Methods of leveling. Levelling Instruments: • Main types of leveling instruments. • Error correction in the leveling process.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Learning Based on Theoretical Understanding of the Subject Matter: • Teaching students to attempt a theoretical understanding of the topic or concept and anticipate results before practical application. • Employing scientific and cognitive foundations for accurate theoretical understanding in the field of surveying and levelling.

	• Learning Through Practical Experience: • Conducting hands-on experiments to become familiar with surveying and levelling instruments and tools. • Collaborative Application-Based Learning: • Assigning students in groups to apply a specific idea, such as conducting a land survey for an agricultural field. • Encouraging students to research and work collaboratively in teams. • Learning Through Idea Exchange and Innovative Problem-Solving: • Learning how to face challenges with a creative idea, then implementing effective solutions in minimal time and cost, and in a safe manner. • Exchanging ideas with others and applying them to support scientific research in the field of surveying. • Multimedia-Supported Learning: • Using educational videos and simulations to explain various procedures. • Presenting visual clips to demonstrate surveying operations and methods as performed on-site. • Self-Directed and Independent Learning: • Encouraging students to conduct self-study and research using scientific references and specialized articles.
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Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem)	47	Unstructured SWL (h/w)	6

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Definition of the space / types of surveys / good scanning requirements / importance of
Week 2	Measurement systems / modules / Measurement errors and mistakes..
Week 3	Survey tape / Terms choose stations / Order book field.
Week 4	Errors in the work of scanning / processing methods and overcome..
Week 5	1 st Exam. Scale / types / Osnabh / factors identified..

Week 6	Spaces / regular shapes and irregular / space coordinates
Week 7	Settlement / terminology / kinds of settings / device
Week 8	Types of settlement / balling and refraction phenomena
Week 9	Methods for calculating the levels of points and teams
Week 10	Business sectors longitudinal / her / action steps / identify a
Week 11	2 ^{sd} Exam. Account the levels of points / distance scale / drawn on
Week 12	Find high drilling depth reclamation / expense cutting
Week 13	Topographical maps / routes representation..
Week 14	Method of contour lines (subsistence) definition line
Week 15	Applications and various issues / problems in the division of territory / reviews.

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	familiar with the tools used in the space characteristics disadvantages tuned / uses.
Week 2	Adjust guidance in measurements and calculate distances flat, oblique
Week 3	Used tools / methods residence and projection / field survey using the tape.
Week 4	Scale lengths and install the stations / roads residence and projection / symptoms
Week 5	Linear way to draw a map of appropriate scale..
Week 6	Applications in a scale drawing / longitudinal / schematic
Week 7	Applications in areas account and Practical Examples
Week 8	Applications to calculate the area of irregular shapes /
Week 9	Recognize Aalfil device (balance) its parts

Week 10	Applications in direct routes to find the levels of the points in
Week 11	Find elevations rise and fall way and how high the device
Week 12	Applications in the longitudinal sector work / identify the main
Week 13	Drawing on graph paper and determine the size of
Week 14	Applications in the work of contour map, drawn /
Week 15	Your Altheodoleight - set the device - measuring vertical and horizontal angles..

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Surveying - translation: Feridun Jalal Al-ddin and Nabil Ibrahim. Written by: John Vancoc.	yes
Recommended Texts	Research,	no
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria

Fail Group	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	F – Fail	راسب	(0-44)	Considerable amount of work required

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

Code	Course/Module Title	ECTS	Semester
FC1203	Plant Taxonomy and Anatomy	7	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	72	98
Description			
☐ Introducing students to the basics of plant taxonomy and the history of taxonomic system development. ☐ Providing students with skills in preparing and preserving herbarium specimens. ☐ Understanding the close relationship between external morphology and internal anatomy of plants. ☐ Accurately distinguishing between monocot and dicot plants anatomically and morphologically			

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	Plant Taxonomy and Anatomy	Module Delivery
Module Type	Core	Theory Lecture Lab
Module Code	FC1203	

ECTS Credits	7			Tutorial Practical Seminar	
SWL (hr/sem)	175				
Module Level		1	Semester of Delivery		Second
Administering Department		Field Crops	College	Agriculture	
Module Leader	Ahmed Shaker Mohsen Al-Dahami		e-mail	ahshaker@uowasit.edu.iq	
Module Leader's Acad. Title		Asst. Professor	Module Leader's Qualification		دكتوراه
Module Tutor	Asst. Lect. Zahra Hameed Ruwaidhi Asst. Lect. Salh Hady Farage		e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date			Version Number		

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	- Introducing students to the basics of plant taxonomy and the history of taxonomic system development. - Providing students with skills in preparing and preserving herbarium specimens. - Understanding the close relationship between external morphology and internal anatomy of plants. - Accurately distinguishing between monocot and dicot plants anatomically and morphologically
Module Learning Outcomes	Ability to use binomial nomenclature rules and classify plants according to scientific ranks.

مخرجات التعلم للمادة الدراسية	• Mastering the skill of creating microscopic cross-sections and examining plant tissues. • Identifying important plant families (such as Poaceae) and their diagnostic characteristics
Indicative Contents المحتويات الإرشادية	• Basics of Taxonomy: Includes definition, importance, objectives, and the history of taxonomic systems development (artificial, natural, and evolutionary). • Study of Binomial Nomenclature: Includes taxonomic ranks and taxonomic evidence (morphological, anatomical, and genetic). • Detailed study of roots, stems, and leaves: Covers shapes and modifications, as well as floral structure and inflorescences. • Herbarium Techniques: Includes methods for collecting plant specimens, drying, pressing, and documenting them in the Herbarium. • Study of meristematic and permanent tissues: Includes the structure of vascular bundles (xylem and phloem). • Anatomical and microscopic comparison: Between monocot and dicot plants regarding roots, stems, and leaves. • Diagnostic characteristics of the Grass Family (Poaceae): Studied as a practical application example. • Training on preparing microscopic cross-sections: Using laboratory tools and equipment to examine tissues and stomata.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Based on the nature of the course for Plant Taxonomy and Anatomy and the distribution of hours between the theoretical and practical aspects, the learning and teaching strategies are represented in the following points: • Interactive Theoretical Lectures: Presenting basic concepts about the history of taxonomy, rules of binomial nomenclature, and types of plant tissues using presentations. • Laboratory and Applied Learning: Practically training students on preparing herbarium specimens (collection, drying, pressing) and examining the floral and morphological parts of plants. • Microscopic Inquiry-Based Learning: Developing the student's skill in performing manual cross-sections and examining tissues, stomata, and vascular bundles under

	the microscope to distinguish between monocots and dicots. • Live Demonstrations: Using live plant samples from the natural environment to explain the morphology of roots, stems, leaves, and floral inflorescences. • Self-Learning and Reporting: Assigning students to prepare scientific reports on the diagnostic characteristics of plant families (such as the Poaceae family) and the results of microscopic examinations. • Scientific Discussions and Seminars: Stimulating students to link external morphology, internal anatomy, and the biological function of the plant through discussion groups
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Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	97	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes الاختبارات القصيرة	2	10% (10)	15	LO #1 - #1,2
	Assignments المهام	2	10% (10)	6	LO #1 - #5
	Projects / Lab. المشاريع / المختبر	1	10% (10)	7,8	LO #1 - #8,9
	Report التقارير	1	10% (10)	8	LO #1 - #7
Summative assessment	Midterm Exam الامتحان النصفى	2hr	10% (10)	16	All
	Final	3hr	50% (50)		

	Exam الامتحان النهائي				
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	Introduction to Plant Taxonomy: Definition, importance, and objectives.
Week 2	History of Taxonomy: Artificial, natural, and evolutionary systems.
Week 3	Taxonomic Units: Rules of Binomial Nomenclature and ranks.
Week 4	Taxonomic Evidence: Using morphological and genetic traits.
Week 5	Morphology (1): Types of roots and stems and their modifications
Week 6	Morphology (2): Leaves, blade shapes, and venation types.
Week 7	The Flower: Structure, symmetry, and reproductive regions.
Week 8	Floral Inflorescences: Determinate and indeterminate types.
Week 9	First Monthly Exam (Theoretical).
Week 10	Plant Anatomy: Meristematic and permanent tissues.
Week 11	Anatomy of Roots and Stems: Comparison between monocots and dicots.
Week 12	Anatomy of the Leaf: Epidermis, motor cells, and mesophyll.
Week 13	Classification of Plant Families: The Grass Family (Poaceae).
Week 14	Comprehensive Comparison: Differences between monocots and dicots.
Week 15	Comprehensive Review: Linking anatomical aspects with taxonomy.

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	Material Covered (English)
Week 1	The Herbarium: Definition and importance.
Week 2	Preparing Herbarium Specimens: Tools and collection methods from the environment.

Week 3	Drying and Pressing Phase: Using the press and blotting paper.
Week 4	Mounting Specimens: Gluing and writing the information label.
Week 5	Root and Stem Morphology: Examination of various practical samples.
Week 6	Leaf Study: Distinguishing between simple and compound leaves.
Week 7	Anatomy of Floral Parts: Calyx, corolla, stamens, and pistil.
Week 8	Study of Spikelets: Examining flower clusters in grasses.
Week 9	First Monthly Exam (Practical).
Week 10	Microscopic Tissues: Training on making cross-sections.
Week 11	Vascular Bundles: Examining the arrangement of xylem and phloem.
Week 12	Stomata and Epidermis: Examining types of stomata under the microscope.
Week 13	General Description of Grasses: Examining roots, stems, and leaves.
Week 14	Taxonomic Differentiation: Using the ligule and auricles for distinction.
Week 15	Practical Review: Reviewing samples and microscopic sections.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	<i>Plant Taxonomy</i> , by Prof. Dr. Ali Hussain Issa Al-Musawi (1987), University of Baghdad.	yes
Recommended Texts	<i>Classification of Flowering Plants</i> , by Dr. Abdelfattah Badr (2006); <i>Introduction to the Classification of Flowering Plants</i> , by Dr. Abdul Jabbar Nasser Jumaa (2017).	yes
Websites	https://www.youtube.com/watch?v=-7c74peq_RI	

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

Module 12

Code	Course/Module Title	ECTS	Semester
AGR1351	Plant Biochemistry	5	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	3	78	72
Description			
The objective of the Biochemistry lesson succinctly is to: 1. Understand the chemical reactions in the plant – study vital processes such as metabolism (metabolic processes), protein synthesis, and enzyme reactions in the plant. 2. Analyze the molecular components of the plant – such as carbohydrates, lipids, proteins, nucleic acids (DNA and RNA). 3. Understand the biological processes that occur within the plant. 4. Interpret the physiological and environmental phenomena affecting the plant.			

MODULE DESCRIPTION FORM

Module Information			
Module Title	Plant Biochemistry		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar
Module Code	AGR1204		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGx1	Semester of Delivery	
Administering Department	Department of Field Crops Sciences	College	College of Agriculture

Module Leader	DR. Hamed Wafic Ebraheem	e-mail	mufalih@uowasit.edu.iq
Module Leader's Acad. Title	Teacher	Module Leader's Qualification	Ph.D
Module Tutor	Teaching Assistant Moataz Abdul-Kadhim	e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/3/2024	Version Number	1.0

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. Scientific and cognitive objectives (theoretical) • Understanding primary and secondary compounds: acquainting the student with the primary organic compounds in crop plants (carbohydrates, proteins, lipids) and secondary metabolic products (alkaloids, phenols) and their defensive and medicinal importance. • Understanding metabolic pathways: enabling the student to comprehend the chemistry of major biological processes such as photosynthesis (carbon fixation and the C_3, C_4, CAM cycles), respiration, and nitrogen fixation. • Knowledge of plant hormone chemistry: understanding the chemical

composition of growth regulators and plant hormones (such as auxins, gibberellins, and ethylene) and their mechanism of action in directing crop growth.

2. Applied and field objectives (practical)

- Improving crop quality: enabling the student to link plant chemical nutrition (macronutrients and micronutrients) to crop yield and seed quality (such as increasing protein percentage in wheat or oil content in sunflower).
- Understanding stress resistance mechanisms: equipping the student to interpret the chemical responses of crops to environmental stresses (such as drought, salinity, and high temperature) through the production of cellular protective compounds (such as proline and antioxidants).
- Prudent handling of pesticides and fertilizers: understanding the chemical composition of fertilizers and pesticides and how they interact within plant tissues to ensure safe and effective use and avoid harmful residues.

3. Skill and laboratory objectives

- Mastery of chemical analysis: training the student in the laboratory in methods of extraction and estimation of plant chemical components (such as estimation of chlorophyll percentage, total nitrogen, and sugars).
- Use of laboratory equipment: equipping the student with the skills to operate basic biochemical analytical instruments (such as the spectrophotometer and chromatographic separation methods).

Module Learning Outcomes	Agriculture students 1.Theoretical knowledge: •Understanding the structure and function of biomolecules (proteins, carbohydrates, lipids, nucleic acids). •Knowledge of basic metabolic reactions (respiration, fermentation, photosynthesis). 2. Practical skills: - o Perform basic biochemical analyses (enzyme assays, crop analysis). - o Interpret the results of analyses related to soil and plant. 3. Agricultural applications: - o Linking biological concepts to improving agricultural production. - o Understanding the role of biochemistry in plant nutrition .
Indicative Contents	Guidelines for the Agricultural Biochemistry Course: 1. Basic Information: - o Course Title: Agricultural Biochemistry - o Code: - o Credit Hours: 2 Theoretical + 3 Practical 2. General Description: - o Study of the chemical principles of biological processes in plants and animals related to the agricultural field. • Objectives: - o Understand the chemical structure of biomolecules

	- o Analyze metabolic processes in living organisms - o Relate biological concepts to agricultural applications 2. Main Contents: - o Biochemical Basics - o Carbohydrates, Proteins, and Lipids - o Nucleic Acids and Enzymes - o Metabolic and Energy Processes 3. Assessment: - o Theoretical Tests - o Practical Reports - o Classroom Participation and Activities 1. References: - o Main textbook - o Supporting references 2. Requirements: - o Attend lectures - o Complete assignments and experiments
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Learning and Teaching Strategies	
Strategies	Theoretical Learning Strategies:

	a. Problem-Based Learning (PBL): b. Collaborative Learning: c. Concept Maps and Diagrams: 2. Practical Learning Strategies: a. Guided Laboratory Experiments: b. Field Visits: c. Applied Projects: 3. Strategies for Enhancing Understanding: A. Constructivism: B. Active learning: C. Immediate feedback: 4. Assessment Strategies: A. Formative Assessment: B. Summative Assessment: 5. Supporting Tools and Technologies: • Simulation software: such as Virtual Labs to simulate biochemical experiments. • Blended Learning: Integrating traditional lectures with electronic materials (videos on metabolic pathways). • Interactive platforms: such as Padlet to share simple research on course topics.
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Student Workload (SWL)			
Structured SWL (h) Regular student load during the semester	78	Structured SWL (h/w) Regular weekly student workload	5
Unstructured SWL (h/sem) Irregular student load during the semester	97	Unstructured SWL (h/w) Irregular student study load per week	6
Total SWL (h/sem) The student's total academic load during the semester	175		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	15	LO #1 - #14
	Assignments	1	10% (10)	6	LO #1 - #5
	Projects / Lab.	1	10% (10)	7	LO #1 - #6
	Report	1	10%	14	LO #1 - #14
Summative	Midterm Exam	2hr	10% (10)	8	LO #1 - #7

assessment	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Theoretical weekly curriculum	
	Material Covered
Week 1	Basics of biochemistry
Week 2	Carbohydrates
Week 3	Carbohydrate classification and structure
Week 4	Carbohydrate metabolism (catabolism and anabolism)
Week 5	Proteins
Week 6	Protein structure and functions
Week 7	Enzymes
Week 8	Fats Classification and Structure of Fats
Week 9	Mid-term exam
Week 10	The role of fats in animal nutrition and energy storage
Week 11	Nucleic acids
Week 12	Metabolism and energy
Week 13	Cellular respiration (Glycolysis, Krebs cycle, electron transport chain)
Week 14	For photosynthesis (photochemical and photochemical stages)
Week 15	For photosynthesis (photochemical and photochemical stages)
Week 16	Semester exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered

Week 1	Introduction to the laboratory and its tools
Week 2	• Laboratory safety •
Week 3	pH analysis
Week 4	Measure the pH of soil and water
Week 5	Starch analysis in plant foods
Week 6	Estimation of soluble sugars
Week 7	Total protein analysis (Biuret method)
Week 8	Measuring protein concentration in animal feed
Week 9	Extracting fat from oil seeds
Week 10	Measurement of amylase activity in germinated seeds
Week 11	DNA extraction from plant tissue
Week 12	DNA detection by simple methods
Week 13	Measuring respiration rate in plant tissues
Week 14	Photosynthesis analysis (measuring the rate of oxygen production)
Week 15	Semester exam

Learning and Teaching Resources

	Text	Available in the Library?
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Required Texts	Biochemistry (Ali Al-Dawoodi)	YES
Recommended Texts	Reliable scientific journals, scientific reports).	NO
Websites		

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

Contact

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Modules

Level Two

Department of Field

Crops

Bologna Process

Module 1

Semester	ECTS	Module Name	Code
1	2	Arabic Language	WU01
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
17	33	0	2
Description			
This module aims to enhance students' Arabic language skills, focusing on improving their abilities in reading, writing, grammar, and comprehension. It provides a foundation in both classical and modern Standard Arabic, with attention to sentence structure, correct usage, punctuation, and writing techniques. The module also introduces students to selected texts from Arabic literature, culture, and heritage, thereby enhancing their appreciation of the richness and depth of the Arabic language. Through this module, students practice essay writing, text analysis, and the precise application of grammatical rules, enabling them to communicate effectively in academic and professional contexts.			

Module 2

Semester	ECTS	Module Name	Code
1	2	Crimes of the Ba'ath Party	WU24
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
17	33	0	2
Description			
This course examines and analyzes the crimes and violations committed by the Ba'ath Party regime in Iraq during its rule, focusing on the political, humanitarian, legal, and social aspects. The course aims to acquaint students with the most prominent policies of repression and persecution applied to various groups within Iraqi society, including campaigns of arrest, torture, enforced disappearance, mass executions, forced displacement, and the use of internationally prohibited weapons. It also highlights the consequences of these crimes on Iraqi society, and discusses concepts of transitional justice and human rights, as well as mechanisms for documenting crimes and			

holding perpetrators accountable under national and international law, thereby contributing to the enhancement of historical awareness and the consolidation of the values of democracy, human rights, and the rule of law

.Module 3

Semester	ECTS	Module Name	Code
1	7	Soil Fertility and Nutrient Management	FC2105
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
97	78	3	2
nDescriptio			
The soil fertility and fertilization course is a fundamental subject in agricultural sciences and aims to provide students with scientific and practical knowledge about the nature of soil and its chemical, physical, and biological properties, and its role in supplying the nutrients necessary for plant growth and production. The course covers the concept of soil fertility and the factors affecting it, such as organic matter, pH, salinity, and the activity of soil microorganisms. It focuses on understanding nutrient cycles in soil and plants, mechanisms of uptake of macronutrients and micronutrients, and their effects on crop growth. The course also addresses the different types of fertilizers (organic, chemical, biofertilizers) and methods of their application to soil or plants, including fertilization timing and methods for estimating fertilizer requirements for different crops, aiming to achieve maximum productivity while maintaining soil fertility and sustainability. Furthermore, the course aims to develop students' skills in diagnosing nutrient deficiencies in plants, analyzing soil and interpreting results, and selecting appropriate fertilization programs for each crop and specific agricultural conditions, thereby achieving scientific and sustainable management of agricultural resources			

Module .4

Semester	ECTS	Module Name	Code
1	7	Cereals and Legumes Crops	EC2106
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
98	72	3	2
Description			

The module aims to introduce the student to the types of cereal and legume crops and their varieties, their economic importance, and methods for their management and production

Module 5

Semester	ECTS	Module Name	Code
1	5	Principles of Horticulture	FC2108
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
47	78	3	2
Description			
. The module aims to introduce the student to the fundamental principles of horticulture and vegetable cultivation and the main field operations in the production of horticultural crops			

Module 6

Semester	ECTS	Module Name	Code
1	5	Crop Mechanization and Harvesting Techniques	FC2107
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
47	78	3	2
Description			
The course aims to familiarize the student with the principal machines and equipment used in the cultivation and production of field crops, methods for their calibration and maintenance, modes of operation, and their main components. The syllabus also covers the key techniques employed in the harvesting process and methods to reduce crop losses.			

Module .7

Semester	ECTS	Module Name	Code
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1	2	Agricultural Laws and Legislation	FC2109
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
17	23	3	2
Description			
. The module aims to introduce the student to the most important laws and regulations that govern agricultural work			

Module .8

Semester	ECTS	Module Name	Code
2	2	English Language 2	WU02
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
18	32	0	2
Description			
This module aims to develop students' academic English skills, focusing on improving reading, writing, listening, and speaking skills in academic contexts. Special attention is given to vocabulary development, grammatical accuracy, sentence and paragraph construction, and basic academic writing techniques. Students interact with a variety of texts and practice language skills through structured activities that enhance their confidence in understanding and using English in the university environment and professional fields. This module prepares students for future academic success by strengthening their ability to understand lectures, write assignments, participate in discussions, and read academic materials effectively.			

Module 9.

Semester	ECTS	Module Name	Code
2	3	Computer Science 2	WOU4
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
66	34	3	0
Description			

This module presents to students the fundamentals of computer programming, with a focus on developing skills using software such as Office. The module covers basic concepts such as data types, variables, input and output operations, control structures (such as loops and conditionals), functions, arrays, and simple data structures. Students will learn how to design computer programs, write them, test them, and debug them. The module aims to develop computational thinking skills and to demonstrate how programming can be used to solve real-world problems, including applications in agriculture, the sciences, data analysis, and automation

Module .10

Semester	ECTS	Module Name	Code
2	6.00	Plant Environment	FC2210
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
72	78	0	2
Description			
. This course aims to provide students with the fundamental concepts of environmental factors affecting crop growth and production, and how to control them to promote healthy growth. It includes classifying environmental factors into climatic, soil, and biotic factors, highlighting the most important environmental interactions between these factors, and methods for measuring them.			

Module 11

Semester	ECTS	Module Name	Code
2	6	Oil and Sugar Crops	FC2211
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
72	78	3	2
Description			
The Oil and Sugar Crops module is a specialized subject in the Department of Field Crops. It aims to acquaint students with the importance of these crops from nutritional, economic, and industrial perspectives, and their role in achieving food security and supporting agricultural and food industries. The module covers the study of oil crops such as soybean, sunflower, flax, sesame, and canola, regarding their economic importance, environmental requirements, cultivation methods, field management, growth stages, harvesting operations, post-harvest handling, and the extraction of vegetable oils.			

The module also includes the study of sugar crops such as sugarcane and sugar beet, with emphasis on environmental factors affecting their production, cultivation methods, fertilization and water requirements, and harvesting and processing operations for sugar extraction.

The module also aims to enable students to understand the scientific principles of managing the production of these crops, improving their productivity and quality, and identifying field problems encountered in their cultivation and methods for addressing them, thereby contributing to the development of the agricultural sector and achieving agricultural sustainability

Module 12

Semester	ECTS	Module Name	Code
2	4	Microbiology and Soil Health	SC2202
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
22	78	3	2
Description			
This course aims to introduce students to the fundamental concepts of soil microbiology and the diverse roles of microorganisms in agricultural ecosystems. It focuses on understanding microbial processes that drive nutrient cycling, organic matter decomposition, and the maintenance of soil fertility. Students will learn to assess soil health indicators and implement sustainable management practices that enhance microbial activity and crop productivity. Additionally, the course equips students with essential laboratory skills to isolate, identify, and utilize beneficial soil microbes effectively.			

Module 13

Semester	ECTS	Module Name	Code
2	5	Irrigation and Drainage Systems	SC2203
USWL (hr/w)	SSWL (hr/sem)	Lect/Lab./Prac./Tutor	Class (hr/w)
47	78	0	2
ionDescript			
The Irrigation and Drainage module examines the scientific and engineering principles of water management in agricultural soils, aiming to achieve optimal use of irrigation water, maintain soil fertility, and increase agricultural production. The module focuses on introducing students to the concepts of irrigation, its types and various methods, and on understanding the properties of soil and water and their relation to the water needs of plants. The module also includes the study of drainage systems and their importance in removing excess water and			

accumulated salts from the soil, which contributes to improving the root environment and preventing land degradation. The module links theory and practice by explaining how to design and manage irrigation and drainage networks efficiently to achieve agricultural sustainability.

MODULE DESCRIPTION FORM

Module Information			
Module Title	Arabic Language		Module Delivery
Module Type	Basic		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	WU01		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level		Semester of Delivery	2
Administering Department	Field Crops	College	Agriculture
Module Leader	Assistant Lecturer Anwar Mahan	e-mail	zathamer@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master's
Module Tutor	Name	e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/3/2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
1. Developing the student's core language skills: listening, speaking, reading, and writing. 2. Enhancing the ability to express oneself orally and in writing in correct and proper Arabic. 3. Expanding the student's vocabulary through the study of new words and structures.	Module Objectives

- Developing reading comprehension and literary analysis skills for various texts (narrative, poetic, and essayistic.) - Introducing the student to basic grammar and spelling rules and applying them in writing and speaking. - Fostering attachment to the Arabic language as the language of religion, culture, and identity. - Training the student in critical and analytical thinking skills through discussion of texts and understanding their meanings and implications. - Exposure to samples of classical and modern Arabic literature to appreciate the aesthetics and history of the language.	
- The student will be able to distinguish between different types of literary and linguistic texts. - The student will use grammatical and spelling rules correctly in writing and speaking. - The student will analyze written texts linguistically and literarily. - The student will write a paragraph or composition in correct and well-organized Arabic. - The student will read texts aloud with correct and expressive pronunciation. - The student will express opinions and positions orally in a clear and correct language. - The student will connect what is learned in Arabic to daily life or academic specialization. The student will demonstrate appreciation for the importance of Arabic in shaping cultural and religious identity	Module Learning Outcomes
- Introduction to the importance and status of the Arabic language - Types of texts: narrative, descriptive, expository, persuasive, and poetic. - Reading and reading-comprehension skills. - Writing skills: composing paragraphs, essays, and letters. - Grammar and morphology rules: nominal sentence, verbal sentence, nominative and accusative cases, and diptotes (non-declinable nouns). - Spelling skills and punctuation marks. - Oral expression and public speaking skills. - Literary analysis of poetic and prose texts. - Familiarity with prominent figures in classical and modern Arabic literature. Applied activities: discussions – oral presentations – written exercises	Indicative Contents

Learning and Teaching Strategies	
- Interactive lectures to explain linguistic and literary concepts. - Group work through classroom discussions and collaborative activities. - Written exercises to develop writing and grammatical skills. - Oral presentations to develop speaking skills and self-confidence. - Analytical reading of various texts to understand deeper meanings. - Project-based learning to apply knowledge in real-world contexts. - Brainstorming to generate ideas and foster creative expression.	Strategies

8. Self-assessment and feedback to improve performance and support continuous learning.	
9. Field visits or meetings with writers to reinforce linking the module to real life (if possible).	
Use of multimedia such as educational videos and presentations to explain the content	

Student Workload (SWL)			
.The student's study load is calculated for 15 weeks			
Structured SWL (h/sem) Regular student study load during the semester.	30	Structured SWL (h/w) Regular student study load per week	2
Unstructured SWL (h/sem) . Irregular student study load during the semester	17	Unstructured SWL (h/w). Irregular student study load per week	1
Total SWL (h/sem). Total student study load during the semester	50		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	1	10% (10)	15	LO #1 - #14
	In-college assignments	1	10% (10)	14	LO #8 - #13
	Homework assignments	1	10% (10)	6	LO #1 - #5
	Reports	1	10% (10)	5	LO #1 - #4
Summative assessment	Midterm exam	2hr	10% (10)	8	LO #1 - #7
	Final exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Topic	Week
Introduction to the history of the Arabic language and its branches: First: Arabic grammar (nahw): Explanation of nominatives including the subject (mubtada) and predicate (khabar), and the 'ism' of kāna and its sisters, with student participation in applying this.	1
Completion of the explanation of nominative forms: the predicate of kāna and its sisters, the subject and the deputy subject (nā'ib al-fā'il), with practical application exercises.	2
Explanation of accusative forms: the direct object (maf'ūl bihi) and the absolute object (maf'ūl muṭlaq).	3
Completion of the explanation of accusative forms: the adverbial object (maf'ūl fih) and the object.	4
The causal object (maf'ūl li-ajlih) and the accompanying object (maf'ūl ma'ah).	5
Using competition and team spirit to explain the topic of the circumstantial adverb (al-ḥāl) and to raise some questions about the topic of exception.	6
Using the question-and-answer method by presenting the topic of specification (al-tamyīz) and proceeding to present the vocative (al-munādā).	7
Introduction to genitives: explaining the importance of genitives formed by prepositions and genitives formed by annexation (iḍāfah).	8
Explanation of dependents: the adjective (al-na't), emphasis (al-tawkīd), and the substitute/apposition (al-badal).	9
Introduction to a new topic—numerals—and learning their rules.	10
Second: Familiarization with morphology (sarf) and the morphological scale through practical application.	11
Explanation of the sound (regular) verb and the difference between it and other verbs.	12
Addressing the basic (unaugmented) verb and augmented verbs, and explaining the assignment of the verb.	13
Third: Dictation/spelling: Explanation of punctuation marks and their importance in writing research papers and university theses.	14
Understanding the importance of correct hamza placement and the correct writing of tā'.	15

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Arabic Language book by Dr. Rafid Sabah Al-Tamimi and Taghreed Fadel Abbas	Yes
Recommended Texts	Scientific journals, reports, electronic references, Internet	No

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

Module 2

MODULE DESCRIPTION FORM

Module Information		
Module Information	Crimes of the Ba'ath Party	Module Delivery

Module Title	B			☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar		
Module Type	WU24					
	2					
	50					
Module Code		UGx11	Semester of Delivery		1	
ECTS Credits		Department of Field Crops	College	College of Agriculture		
SWL (hr/sem)	Dr. Farid Jasim Hassan		e-mail			
Module Level		Lecturer	Module Leader’s Qualification		PhD	
Administering Department			e-mail			
Module Leader		Name	e-mail	E-mail		
Module Leader’s Acad. Title		1/10/2026	Version Number	1.0		

Relation with other Modules Relationship with Other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents ning Outcomes, and Guiding ContentsModule Aims, Lear	
Module Objectives	1. To learn about the nature of the Ba'ath Party regime in Iraq and the stages of its political development. 2. To understand the major crimes and violations committed during the period of the regime's rule. 3. To study the political, social, economic, and humanitarian impacts resulting

	from those crimes. 4. To become familiar with the concepts of human rights and international humanitarian law and their relation to the crimes committed. 5. To analyze the causes and motives of human rights violations in totalitarian regimes. 6. To develop students' ability to document historical events and analyze them scientifically and objectively. 7. To learn about the concept of transitional justice and the mechanisms for achieving it in societies emerging from conflict. 8. To raise awareness of the importance of respecting the fundamental rights and freedoms of individuals and groups. 9. To develop critical thinking skills in the study of contemporary historical events and issues. 10. To understand the long-term effects of crimes and violations on Iraqi society. 11. To learn about the role of national and international institutions in documenting crimes and holding perpetrators accountable. 12. To promote the values of tolerance, peaceful coexistence, and the rejection of violence and despotism. 13. To cultivate a sense of national responsibility toward preserving human rights and the rule of law. 14. To link historical events to contemporary challenges related to democracy and human rights. To prepare students to contribute to building a society based on justice, citizenship, and respect for human dignity.
Module Learning Outcomes	• To define the fundamental concepts related to political crimes and human rights violations. • To describe the main historical stages of the Ba'ath Party regime's rule in Iraq. • To identify the most prominent crimes and violations committed by the regime against various segments of Iraqi society. • To explain the causes and factors that contributed to the occurrence of those crimes and violations. • To analyze the political, social, economic, and psychological effects resulting from the crimes committed. • To distinguish between types of crimes in accordance with relevant national and international laws. • To apply human rights principles in evaluating historical and political events. • To discuss the role of national and international institutions in documenting crimes and holding perpetrators accountable. • To assess the importance of transitional justice in addressing the consequences of violations and achieving societal reconciliation. • To prepare brief reports and studies on issues related to the crimes of the former regime. • To use historical and documentary sources in a scientific manner when studying events. • To demonstrate critical thinking skills and objective analysis of

	contemporary historical issues. • To draw conclusions and lessons learned from previous political experiences. • Promoting a culture of respect for human rights and rejecting violence and tyranny. Actively participating in the discussion of national issues related to justice, democracy, and the rule of law.
Indicative Contents	• Introducing the Ba'ath Party regime in Iraq, its origins, and political development. • The concept of political crimes and human rights violations. • National and international legal foundations for criminalizing human rights violations. • Repressive and security apparatuses and their role in consolidating power. • Arbitrary arrests, torture, and enforced disappearance. • Mass executions and unfair trials. • Forced displacement and demographic change and their effects. • The Anfal campaigns and crimes committed against civilians. • The use of chemical weapons and their humanitarian and environmental impacts. • Repression of uprisings and political and social movements. • Conditions of prisons and detention centers and violations of prisoners' rights. • The impact of crimes on the social and economic structure of Iraqi society. • Documenting crimes and preserving the national memory. • Transitional justice and mechanisms of accountability and redress. • The role of national and international institutions in protecting human rights. • Social reconciliation and rebuilding trust after conflicts. • Lessons learned and the importance of consolidating democracy and the rule of law. Promoting a culture of human rights and rejecting violence and tyranny in society.

Learning and Teaching Strategies	
Strategies	• Interactive lecture: presenting concepts and historical events while engaging students in discussion and questioning. • Group discussion: examining historical and human rights issues to develop critical thinking and objective analysis.

	• Brainstorming: eliciting students' ideas about the causes and effects of crimes and ways to prevent their recurrence. • Collaborative learning: dividing students into groups to undertake joint tasks and studies on course topics. • Case study: analyzing specific historical events and facts and drawing conclusions and lessons learned. • Problem solving: discussing issues related to human rights and transitional justice and proposing appropriate solutions. • Project-based learning: preparing reports or short research papers on selected topics from the course. • Self-directed learning: encouraging students to consult sources and references to complete and expand their knowledge. • Presentations: students delivering seminars or academic presentations on various course topics. • Analysis of historical documents and sources: studying documents, reports, and historical testimonies relevant to the course. • Dialogue and debate-based learning: developing communication skills, expressing opinions, and respecting differing viewpoints. Use of educational media and modern technologies: employing visual presentations and documentary materials to support the learning process.
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Student Workload (SWL)			
Structured SWL (h/sem)	23	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	17	Unstructured SWL (h/w)	1
Total SWL (h/sem)	50		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative	Quizzes	2	20% (10)	15	LO #1 - #14

assessment	Assignments	2	10% (10)	6	LO #1 - #5
	Report	1	10% (10)	15	LO #1 - #14
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to the course, its importance and objectives, and the emergence of the Ba'ath Party in Iraq.
Week 2	The political developments that accompanied the Ba'ath Party's ascent to power.
Week 3	The nature of the totalitarian regime and the instruments of political and security control.
Week 4	The concept of political crimes and human rights violations in authoritarian regimes.
Week 5	Security and intelligence agencies and their role in political repression.
Week 6	Arbitrary arrests, torture, and enforced disappearance.
Week 7	Mass executions, exceptional trials, and their effects.
Week 8	Forced displacement and demographic change in Iraq.
Week 9	The Anfal campaigns and their humanitarian and social repercussions.
Week 10	Use of chemical weapons and their effects on populations and the environment.
Week 11	Repression of uprisings and political and social movements.
Week 12	Prisons and detention centers and violations of the rights of prisoners and detainees.
Week 13	Documenting crimes and preserving national memory, and the role of the competent institutions.

Week 14	Transitional justice, legal accountability, and social reconciliation.
Week 15	Comprehensive review of the course and discussion of lessons learned and the importance of strengthening human rights and the rule of law.
Week 16	Monthly exam + reports and research

Learning and Teaching Resources		
	Text	Available in the Library?
Required	Core books and references •Books on the Contemporary Political History of Iraq. •Books specialized in the study of totalitarian and authoritarian regimes. •References related to human rights and international humanitarian law. •Academic studies and scientific research on the modern history of Iraq. Supplementary references •Reports issued by international organizations concerned with human rights. •National documents and archives related to historical events in Iraq. •University theses and dissertations relevant to the module topic.	Yes
Recommended	Teaching and learning methods • Classroom lectures. • Presentations (PowerPoint.(• Worksheets and group activities. • Discussions and academic seminars. • Print and electronic library. Digital resources and academic databases.	Yes
Websites		

Grading Scheme

Grading Scheme

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

Module 3

MODULE DESCRIPTION FORM

Module Information				
Module Title	Soil Fertility and Nutrient Management		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	FC2105			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level			Semester of Delivery	2
Administering Department		Field Crops	College	Agriculture

Module Leader	Assistant Lecturer Noor Alhuda Jwad	e-mail	nalhuda@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master's
Module Tutor		e-mail	
Peer Reviewer Name	Dr. Zahraa Kaled	e-mail	E-mail
Scientific Committee Approval Date	1/3/2025	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents	
1. Understand the concept of soil fertility and its importance in agricultural production. 2. Identify the physical, chemical, and biological properties of soil and their relationship to plant growth. 3. Recognize the role of macro- and micronutrients in plant nutrition. 4. Identify types of fertilizers and methods for their correct scientific use. 5. Analyze problems of nutrient deficiencies in soil and plants and propose appropriate solutions. 6. Develop fertilization management skills to achieve sustainable agricultural production. 7. Link soil analysis results to the selection of an appropriate fertilization program.	Module Objectives
Knowledge and understanding · Explain the concept of soil fertility and its influencing factors. · Describe the role of nutrients in plant growth. · Clarify the types of fertilizers and the characteristics of each type. Cognitive skills · Analyze soil test results and interpret them scientifically. · Differentiate between symptoms of nutrient deficiencies in plants. · Evaluate the efficiency of different fertilization programs. Practical skills · Select the appropriate fertilizer type according to crop and soil type. · Apply different fertilization methods (broadcasting, fertigation, foliar fertilization). · Prepare a simplified fertilization program for an agricultural crop. General skills · Work as part of a team in preparing soil reports. · Use scientific thinking to solve fertility problems. · Commitment to sustainable agricultural practices.	Module Learning Outcomes
1. Concept of soil fertility and its agricultural importance 2. Soil components (physical – chemical – biological)	

3. Organic matter and its role in improving soil fertility 4. Macronutrients and micronutrients and their functions 5. Soil analysis and interpretation of results 6. Nutrient deficiencies in plants and their symptoms 7. Types of fertilizers (organic, chemical, biological) 8. Methods of applying fertilizers to soil and plants 9. Fertilizer use efficiency and factors affecting it 10. Fertilization programs for agricultural crops 11. Sustainable management and conservation of soil fertility	Indicative Contents
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Learning and Teaching Strategies	
1. Presentation of fundamental concepts such as soil fertility and nutrients, engaging students through questions and discussion. Practical learning (laboratory) - Conducting soil analysis experiments, measuring pH, and estimating certain nutrients. - Problem-based learning - Assigning students to solve problems of nutrient deficiencies or low productivity in agricultural fields and to propose fertilization solutions. Case study - Analyzing real or hypothetical field cases to determine soil type and nutritional problems and to develop an appropriate fertilization program. Collaborative learning - Dividing students into groups to prepare reports on soil fertility or fertilization programs for different crops. Brainstorming - Encouraging students to propose solutions to improve soil fertility and reduce nutrient loss. Presentations - Presenting experiment results or scientific reports individually or in groups using modern presentation tools. Project-based learning - Preparing an integrated project on soil fertility management for a specific crop from planting to harvest. Self-directed learning - Encouraging students to research scientific references and modern agricultural databases. Field visits - Visiting agricultural fields or research stations to observe fertilization practices in the field.	Strategies

Student Workload (SWL).			
Structured SWL (h/sem) Regular student study load during the semester.	78	Structured SWL (h/w) Regular student study load per week	5
Unstructured SWL (h/sem) . Irregular student study load during the semester	97	Unstructured SWL (h/w). Irregular student study load per week	6
Total SWL (h/sem). Total student study load during the semester	175		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	1	10% (10)	15	LO #1 - #14
	In-college assignments	1	10% (10)	14	LO #8 - #13
	Homework assignments	1	10% (10)	6	LO #1 - #5
	Reports	1	10% (10)	5	LO #1 - #4
Summative assessment	Midterm exam	2hr	10% (10)	8	LO #1 - #7
	Final exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Topics covered	Week
Introduction to soil fertility and its importance in agricultural production	Week 1
Soil components (physical, chemical, and biological)	Week 2
Organic matter and its role in improving soil fertility	Week 3

Soil nutrients: macronutrients and micronutrients	Week 4
Role of nutrients in plant growth and their functions	Week 5
Soil and the relationship of pH and salinity to soil fertility	Week 6
Soil analysis and sampling methods	Week 7
Interpretation of soil analysis results	Week 8
Symptoms of nutrient deficiencies in plants	Week 9
Organic fertilizers: their importance and methods of use	Week 10
Chemical fertilizers: types and properties	Week 11
Biofertilizers and their role in improving soil fertility	Week 12
Methods of fertilizer application (broadcasting, injection, foliar fertilization)	Week 13
Fertilizer use efficiency and fertilization management	Week 14
Comprehensive review + practical applications and case studies	Week 15

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Introducing students to the agricultural laboratory and soil analysis tools
Week 2	Collecting soil samples from the field (Sampling) and preservation methods
Week 3,	Determination of the apparent soil texture (sandy, clayey, mixed/loamy)
Week 4	Estimating soil organic matter and explaining its importance
Week 5	Measuring soil pH (pH) using instruments or indicators
Week 6	Measuring electrical conductivity (EC) to determine soil salinity
Week 7	Analysis of macronutrients (theoretical + simplified practical)
Week 8	Identifying symptoms of nutrient deficiencies in plant samples
Week 9	Soil analysis to determine initial fertilization needs
Week 10	Experiment on organic fertilizers and their effect on soil fertility
Week 11,	Comparison of chemical fertilizers (nitrate, urea, phosphate)
Week 12	Foliar fertilization experiment
Week 13	Methods of applying fertilizer to the soil (broadcasting, incorporation/mixing, injection)
Week 14	Preparing a fertilization program for a specific crop

Week 15	Final practical project: soil analysis + integrated fertilization recommendation
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Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Soil Fertility and Fertilizers – Randall J. Weiner & Havlin et al.	Yes
Recommended Texts	Fertilizer Technology and Management – Norman C. Brady & Ray R. Weil (or similar books in soil science).	No

Classification scheme				
Definition	% Marks	Grade	Grade	Group
Outstanding performance	100 - 90	Excellent	Excellent -A	Passing Group (100 - 50)
Above average with some errors	89 - 80	Very Good	Very Good -B	
Sound work with noticeable errors	79 - 70	Good	Good -C	
Fair but with major defects	69 - 60	Average	-D Satisfactory	
Work meets the minimum standards	59 - 50	Acceptable	Sufficient -E	
Further work required but credit awarded	(49-45)	Failed (Central Processing Unit)	FX – Fail	Failure group (49 – 0)
A large amount of work required	(44-0)	Failed	Fail –F	
Note: Decimal fractions of 0.5 or greater will be rounded up to the next whole mark, while fractions less than 0.5 will be rounded down to the lower whole mark (for example, a mark of 54.5 will be rounded to 55 ,whereas a mark of 54.4 will be rounded to 54). The university has a policy that does not allow borderline failures to be converted to passes, so the only modification to marks awarded by the original examiners will be the automatic rounding described above.				

.Module 4

MODULE DESCRIPTION FORM

Module Information				
Module Title	Crop Mechanization and Harvesting Techniques		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	FC2107			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	Level Two	Semester of Delivery		
Administering Department	Department of Field Crops	College	College of Agriculture / University of Wasit	
Module Leader	'Asst. Prof. Dr. Ahmed Abd Kati		e-mail	
Module Leader's Acad. Title	Assistant Professor	PhD in Agricultural Machinery and Equipment		
Module Tutor	Assistant Lecturer Moataz Abd al-Kadhim Shakir		e-mail	-----
Peer Reviewer Name	Prof. Dr. Nabil Rahim Lahmood		e-mail	-----
Scientific Committee Approval Date	2025/10/1	Version Number	1.0	

Relation with other Modules			
Prerequisite module	No	Semester	2
Co-requisites module	No	Semester	2

comes, and Guiding ContentsModule Aims, Learning Ou	
Module Aims	1. Introduce students to the basic concepts of mechanization of agricultural operations in field crops and its role in increasing production efficiency and reducing labor costs. 2. Enable students to understand tractor components, power transmission mechanisms, and methods for selecting appropriate implements for each agricultural operation. 3. Explain principles of operation and adjustment of tillage, planting, fertilization, spraying, and weed control machinery in crop fields. 4. Train students in harvesting techniques for cereal, legume, oilseed and forage crops and in reducing losses during and after harvest. 5. Develop students' ability to evaluate field performance of agricultural machinery in terms of field capacity, efficiency, fuel consumption, and occupational safety.
Module Learning Outcomes	LO1: The student explains the importance of agricultural mechanization in field crop production and its relation to resource-use efficiency and field economic management. LO2: The student identifies the main components of the agricultural tractor, power sources, and transmission and control mechanisms used with agricultural implements. LO3: The student selects the appropriate machine for plowing, leveling, planting, fertilizing, spraying, and harvesting operations according to crop type and soil conditions. LO4: The student applies basic calculations for theoretical and actual field capacity, field efficiency, required power, and fuel consumption. LO5: The student practically adjusts planting and harvesting machinery to reduce losses, improve seed distribution uniformity, and enhance operation quality. LO6: The student analyzes causes of mechanical and field losses and faults during harvesting operations and proposes suitable technical solutions. LO7: The student produces a technical report or short presentation on a modern harvesting machine or technique used in field crops. LO8: The student adheres to occupational safety procedures when handling tractors, rotating machinery, and sharp equipment in the lab and field.
Guiding Contents	The course addresses the concept of agricultural mechanization and its importance in field crop production, focusing on tractors, power sources and transmission systems, and implements for soil preparation, planting, fertilization, spraying, and weed control. The course also covers harvesting techniques for different crops, including combine harvesting of cereals, harvesting of legumes, oilseeds and forage crops, methods to reduce field and mechanical losses, and principles of postharvest handling, transport and primary storage. The practical component emphasizes familiarization with machine parts, adjustment of planting and harvesting equipment, calculation of field performance, and application of basic safety and maintenance procedures.

Teaching and Learning

Strategies	The teaching strategy relies on interactive lectures supported by diagrams and charts, class discussions, practical applications in the laboratory and field, display of scale models or instructional photos and videos of agricultural machines, and solving calculation problems related to field performance. Students are assigned short reports on modern harvesting techniques or common faults and their remedies, linking theoretical concepts to the actual operation of machines in local crop fields.
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The student's study load is calculated for 15 weeks			
Structured SWL (h/sem)	60	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	65	Unstructured SWL (h/w)	4.3
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4 quizzes	10% (10 Marks)	Weeks 3, 6, 10, 13	LO1, LO2, LO3, LO4
	Assignments	2 assignments	10% (10 Marks)	Weeks 5, 11	LO3, LO4, LO6, LO7
	Projects / Lab.	Practical/Lab. activities	15% (15 Marks)	Weekly	LO4, LO5, LO6, LO8
	Reports	1 technical report	5% (5 Marks)	Week 14	LO6, LO7, LO8
Summative assessment	Midterm Exam	1 Midterm Exam	20% (20 Marks)	Week 8	LO1, LO2, LO3, LO4
	Final Exam	1 Final Exam	40% (40 Marks)	Week 16	All learning outcomes
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to agricultural mechanization in field crops: concept, importance, and areas of application.
Week 2	Agricultural tractors: types, main components, power sources, and selection criteria.
Week 3	Power transmission and coupling with agricultural implements: rear PTO shaft, drawbar, and hydraulics.
Week 4	Primary and secondary tillage implements and their effects on soil properties and crop growth.
Week 5	Planting and seeding machines: types, adjustment of seeding rate, distribution uniformity and planting depth.
Week 6	Fertilizing, spraying and weed-control machines: working principles, calibration, and safety requirements.
Week 7	Field performance calculations: theoretical and actual capacity, field efficiency, and required power.
Week 8	Midterm exam and applied review of core concepts and calculations.
Week 9	Grain harvesting techniques: combine harvester, cutting units, threshing, cleaning, and separation.
Week 10	Losses during grain harvesting: types, causes, and methods to measure and reduce them.
Week 11	Harvesting techniques for legume and oilseed crops: harvesting requirements and problems of shattering and breakage.
Week 12	Equipment for harvesting forage crops, straw, and hay: cutting, drying, baling, and transportation.
Week 13	Routine maintenance, lubrication, and storage of agricultural machinery after the end of the season.
Week 14	Occupational safety in operating tractors and harvesting machinery and management of field risks.
Week 15	Comprehensive review, discussion of student reports, and preparation for the final exam.

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Practical introduction to the parts of the agricultural tractor, their basic functions, and pre-operation inspection procedures.
Week 2	Familiarization with methods of attaching implements to the tractor, hitch points, hydraulics, and the rear power take-off shaft.
Week 3	Observation and inspection of plows and soil preparation implements and comparison of their field uses.
Week 4	Practical exercise to adjust the seeder and calculate seeding rate and distance between hills or rows.
Week 5	Calibration of a fertilizer spreader or agricultural sprayer and calculation of application or spray rate.
Week 6	Solving practical problems in field capacity, efficiency, and fuel consumption.
Week 7	Identification of the combine harvester parts and the crop flow path within it.

Week 8	Short practical test and applied review of the studied machinery.
Week 9	Applications in measuring losses before harvest, during harvest, and after harvest for grain crops.
Week 10	Adjustment of cutting, threshing, and cleaning units in the combine according to crop type and moisture.
Week 11	Familiarization with harvesting equipment for legumes and oilseeds and discussion of issues of breakage and shattering.
Week 12	Familiarization with equipment for cutting, baling, and collecting plant residues, straw, and hay.
Week 13	Applications in daily and seasonal maintenance procedures, lubrication, and replacement of worn parts.
Week 14	Presentation and discussion of student reports on a selected agricultural machine or harvesting technique.
Week 15	Comprehensive practical review and completion of practical assessment requirements.

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Hunt, D. Farm Power and Machinery Management. Kepner, R.A., Bainer, R., & Barger, E.L. Principles of Farm Machinery..	/ Yes
Recommended Texts	. Technical bulletins issued by the Ministry of Agriculture and agricultural machinery manufacturers.	Partially
Websites	/ Electronic	

Grading Scheme

Grading Scheme

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

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

.Module 5

MODULE DESCRIPTION FORM

Module Description Form

Module Information				
Module Information				
Module Title	Cereals and Legumes crops		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	EC2106			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	Level Two	Semester of Delivery		Semester 3
Administering Department	Department of Field Crops	College	College of Agriculture / University of Wasit	
Module Leader	Asst. Prof. Dr. Hussein Ibrahim Tarish		e-mail	htarish@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Ph.D. in Field Crops / Agronomy		
Module Tutor	Asst, Wamed Majed Ali		e-mail	----
Peer Reviewer Name		e-mail	-----	
Scientific Committee Approval Date	2025-2026	Version Number	1.0	

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	no	Semester	
Co-requisites module	no	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims, Learning Outcomes, and Guiding Contents	
Module Objectives	1. Introduce the student to the scientific concepts and agronomic foundations of cereal and legume crops and their nutritional and economic importance. 2. Enable the student to distinguish between the main cereal crops such as wheat, barley, rice, and maize, and legume crops such as chickpea, lentil, faba bean, and mung bean. 3. Explain the environmental requirements and crop management operations including land preparation, sowing, fertilization, irrigation, and control of weeds and pests. 4. Train the student to relate growth and production stages to climatic and soil factors and to field management. 5. Develop the student's ability to diagnose common field problems and propose appropriate management practices to improve productivity and quality.
Module Learning Outcomes	LO1: The student explains the economic and nutritional importance of cereal and legume crops and their role in food security and improving soil fertility. LO2: The student distinguishes the botanical and taxonomic characteristics of the main cereal and legume crops. LO3: The student identifies the environmental and agronomic requirements of each crop in terms of climate, soil, sowing dates, and plant density. LO4: The student applies the basic principles of crop management for cereals and legumes, including fertilization, irrigation, and control of weeds and pests. LO5: The student analyzes causes of reduced field productivity and proposes practical agricultural solutions. LO6: The student compares systems of cereal and legume production in terms of management, harvesting, storage, and product quality. LO7: The student prepares short reports or scientific presentations on a cereal or legume crop relying on reliable scientific sources. LO8: The student adheres to field and laboratory work ethics, safety requirements, and teamwork.
Module Learning Outcomes	
Indicative Contents	.1 The course includes the study of basic concepts of cereal and legume crops, their importance in Iraqi and global agriculture, plant characteristics, growth stages, and environmental and agronomic requirements. .2 Land preparation, sowing, fertilization, irrigation, weed and pest control, harvesting, and storage. The course topics cover wheat, barley, rice, yellow maize and white maize, in addition to chickpea, lentil, faba bean, mung bean, cowpea, and soybean. The practical component focuses on field and laboratory identification of seeds and plants, monitoring growth stages, calculating plant density and yield components, and analyzing case studies related to crop management.

Learning and Teaching Strategies

Strategies

The teaching strategy relies on interactive lectures, classroom discussion, practical applications in the laboratory and field, study of plant and seed samples, solving agricultural problems, and preparing short reports and scientific presentations. Students are encouraged to pursue self-directed learning by consulting textbooks, agricultural bulletins, and scientific electronic resources, linking theoretical concepts to field practices in the local agricultural environment.

Student Workload (SWL)

Structured SWL (h/sem)

78

Structured SWL (h/w)

4

Unstructured SWL (h/sem)

97

Unstructured SWL (h/w)

4.3

Total SWL (h/sem)

175

Module Evaluation

Module assessment

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4 quizzes	10% (10 Marks)	Weeks 3, 6, 10, 13	LO1, LO2, LO3, LO5
	Assignments	2 assignments	10% (10 Marks)	Weeks 5, 11	LO3, LO5, LO7
	Projects / Lab.	Practical/Lab. activities	15% (15 Marks)	Weekly	LO4, LO6, LO8
	Reports	1 report	5% (5 Marks)	Week 14	LO5, LO7, LO8
Summative assessment	Midterm Exam	1 Midterm Exam	20% (20 Marks)	Week 8	LO1, LO2, LO3, LO4
	Final Exam	1 Final Exam	40% (40 Marks)	Week 16	All learning outcomes
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
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Week 1	Introduction to cereal and legume crops: economic and nutritional importance and their role in agricultural systems.
Week 2	Botanical and field classification of cereal and legume crops and the general characteristics of each group.
Week 3	Wheat crop: importance, varieties, environmental requirements, and cultivation and management operations.
Week 4	Barley crop: importance, environmental adaptation, crop management and harvesting, and uses.
Week 5	Rice crop: water and thermal requirements, cultivation methods, and field management.
Week 6	Yellow maize and white maize crops: growth stages, fertilization, irrigation, and yield components.
Week 7	Weed, pest, and disease management in cereal crops, with applied case studies.
Week 8	Midterm exam and applied review of cereal crop topics.
Week 9	Introduction to legume crops: nitrogen fixation, nutritional importance, and their role in crop rotations.
Week 10	Chickpea and lentil crops: varieties, environmental requirements, cultivation, and crop management.
Week 11	Faba bean and mung bean crops: agronomic requirements, field management, and harvest.
Week 12	Cowpea and soybean crops: importance, production management, and quality.
Week 13	Fertilization and irrigation management and weed and pest control in legume crops.
Week 14	Harvesting, postharvest handling, storage, and grain and seed quality in cereal and legume crops.
Week 15	Comprehensive review, discussion of student reports, and preparation for the final exam.

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Practical introduction to cereal and legume seeds and their morphological identification.
Week 2	Seed purity testing and calculation of thousand-seed weight and germination percentage.
Week 3	Identification of wheat and barley plants and their vegetative growth stages.
Week 4	Practical exercises in calculating seeding rate and plant density for cereal crops.
Week 5	Observing characteristics of rice, yellow maize, and white maize and their yield components.
Week 6	Estimating yield components in cereal crops from field or laboratory samples.
Week 7	Diagnosing common weeds in cereal fields and discussing their control.
Week 8	Short practical test and discussion of the results of previous exercises.
Week 9	Identification of seeds and plants of chickpea, lentil, faba bean, and mung bean.
Week 10	Study of root nodules in legume crops and their importance in nitrogen fixation.
Week 11	Calculating seeding rate and plant density for legume crops.
Week 12	Diagnosing some common pests and diseases in legume crops.
Week 13	Estimating yield components of legume crops from laboratory or field samples.

Week 14	Presentation and discussion of students' reports on a selected cereal or legume crop.
Week 15	Comprehensive practical review and completion of practical assessment requirements.

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	1- Martin, J.H., Leonard, W.H., & Stamp, D.L. Principles of Field Crop Production. - 2- Legume Crops 1980. Dr. Hamid Jalub and Talib Ahmed Issa	Yes
Recommended Texts	Acquaah, G. Principles of Crop Production: Theory, Techniques, and Technology. Scientific bulletins issued by the Ministry of Agriculture and relevant agricultural organizations.	Partly
Websites	Online	

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

.Module 6

MODULE DESCRIPTION FORM

Module Information

Module Title	Principle of Horticulture			Module Delivery	
Module Type	Core			☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	FC2108				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		Level Two	Semester of Delivery		Semester 3
Administering Department		Department of Field Crops	College	College of Agriculture / University of Wasit	
Module Leader	Asst. Prof. Dr. Naseer Fahim Yasser		e-mail	nafahim@uowasit.edu.iq	
Module Leader's Acad. Title		Assistant Professor	PhD in Horticulture		
Module Tutor	Asst. Lecturer Hadeel Hamza Ali		e-mail	-----	
Peer Reviewer Name		Prof. Dr. Nabil Rahim Lahmood	e-mail	-----	
Scientific Committee Approval Date		2025-2026	Version Number	1.0	

Relation with other Modules			
Prerequisite module	No	Semester	
Co-requisites module	No	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. Introduce the student to the fundamental concepts of horticulture, its branches, and its relation to the production of fruits, vegetables, and ornamental plants within modern agricultural systems. 2. Enable the student to understand the environmental and edaphic factors affecting the growth, productivity, and quality of horticultural crops. 3. Explain the principles of establishing orchards and nurseries and propagating horticultural plants by seed and vegetative methods, including grafting, layering, and cuttings. 4. Train the student to understand essential horticultural field operations such as irrigation, fertilization, pruning, training, weed and pest control, and soil management. 5. Develop the student's ability to link horticultural principles to the needs of the Department of Field Crops in terms of production diversification, sustainable management, and improving resource-use efficiency.

Module Learning Outcomes	LO1: The student explains the concept of horticulture, its main branches, and the importance of horticultural crops nutritionally, economically, and environmentally. LO2: The student distinguishes between fruit crops, vegetables, and ornamental plants in terms of growth habits, environmental requirements, and management practices. LO3: The student explains the effects of light, temperature, water, soil, and nutrients on the growth and production of horticultural plants. LO4: The student applies the basic principles of seedling production and plant propagation by seed, cuttings, layering, and grafting in both theoretical and practical contexts. LO5: The student selects appropriate agronomic operations for managing orchards and vegetable fields, including irrigation, fertilization, pruning, training, and weed control. LO6: The student analyzes common problems in horticultural crop production, such as poor fruit set, flower and fruit drop, nutrient deficiencies, and quality deterioration. LO7: The student prepares a report or short presentation on a selected horticultural crop outlining its environmental requirements, management practices, and production. LO8: The student adheres to safety procedures, teamwork, and scientific accuracy during practical training in the laboratory, nursery, or field.
Indicative Contents	The course covers the general foundations of horticulture in terms of its concept, branches, and economic and nutritional importance, with emphasis on the relationship between environmental and edaphic factors and the growth and production of fruit, vegetable, and ornamental crops. The course also presents principles of establishing orchards and nurseries, methods of sexual and vegetative propagation, and basics of plant care such as irrigation, fertilization, pruning, training, regulation of flowering and fruiting, and harvesting. The practical component trains students to identify examples of horticultural plants, prepare growing media, carry out propagation operations, observe nutrient deficiency symptoms, and assess certain growth and quality indicators

Learning and Teaching Strategies	
Strategies	. The teaching strategy relies on interactive lectures supported by images, illustrations, and plant specimens, and classroom discussions that link scientific principles to the reality of horticultural production in the local environment. Practical sessions in the laboratory, nursery, and field are used to train students in plant propagation, plant part identification, diagnosis of certain problems, and implementation of basic crop care operations. Students are assigned short reports or presentations on selected horticultural crops to enhance self-learning, scientific communication skills, and teamwork

Student Workload (SWL)			
Structured SWL (h/sem)	78	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	47	Unstructured SWL (h/w)	4.3
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4 quizzes	10% (10 Marks)	Weeks 3, 6, 10, 13	LO1, LO2, LO3, LO4
	Assignments	2 assignments	10% (10 Marks)	Weeks 5, 11	LO3, LO5, LO6, LO7
	Projects / Lab.	Practical/Lab. activities	15% (15 Marks)	Weekly	LO4, LO5, LO6, LO8
	Reports	1 report or presentation	5% (5 Marks)	Week 14	LO6, LO7, LO8
Summative assessment	Midterm Exam	1 Midterm Exam	20% (20 Marks)	Week 8	LO1, LO2, LO3, LO4
	Final Exam	1 Final Exam	40% (40 Marks)	Week 16	All learning outcomes
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to horticultural science: concept, branches, and nutritional, economic, and environmental importance.
Week 2	Classification of horticultural crops: fruits, vegetables, ornamental plants, and botanical and economic classification criteria.
Week 3	Environmental factors affecting horticultural growth: temperature, light, humidity, wind, and site selection.
Week 4	Soil and water in horticultural production: soil properties, drainage, salinity, and irrigation water quality.
Week 5	Horticultural nurseries: importance, planning, growing media, and seedling management.
Week 6	Seed propagation in horticultural plants: seed quality, dormancy, germination, and seedling production.
Week 7	Vegetative propagation: cuttings, layering, offsets, bulbs, tubers, and the importance of preserving genetic traits.
Week 8	Midterm exam and applied review of fundamental concepts in propagation and nurseries.
Week 9	Grafting and budding in fruit trees: physiological bases, types, timing, and factors affecting success.
Week 10	Establishing orchards: site selection, planting distances, layout systems, and windbreaks.
Week 11	Orchard and vegetable field maintenance operations: irrigation, fertilization, hoeing, weed control, and mulching.
Week 12	Pruning, training, and growth regulation in fruit trees and ornamental plants.
Week 13	Flowering, fruit set and fruit development: influencing factors and problems of fruit drop and weak

	set.
Week 14	Harvest and postharvest in horticultural crops: maturation, picking, sorting, packing, and primary storage.
Week 15	Comprehensive review, discussion of student reports, and preparation for the final exam.

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Practical recognition of examples of fruit, vegetable, and ornamental crops and their preliminary classification.
Week 2	Identification of parts of the horticultural plant and the functions of root, stem, leaf, flower, and fruit.
Week 3	Preparation of simple growing media for the nursery and examination of some of their physical properties.
Week 4	Seed germination testing of certain vegetables or ornamental plants and calculation of germination percentage.
Week 5	Conducting seed sowing in trays or seedling containers and monitoring seedling growth.
Week 6	Performing propagation by stem or leaf cuttings and discussing factors for successful rooting.
Week 7	Familiarization with layering, suckers, bulbs, and tubers as models of vegetative propagation.
Week 8	A short practical test and applied review of propagation and nursery operations.
Week 9	Practical training on grafting and budding principles using plant models or instructional specimens.
Week 10	Designing a small orchard or a simplified nursery and calculating planting distances and the number of plants per unit area.
Week 11	Recognition of deficiency symptoms of certain nutrients in horticultural plants through photographs or samples.
Week 12	A simplified application of pruning and training operations and discussion of their objectives according to plant type.
Week 13	Measuring some growth indicators such as plant height, number of leaves, leaf area, or stem diameter.
Week 14	Evaluating quality traits of a selected horticultural crop such as size, color, firmness, and overall appearance.
Week 15	Presentation and discussion of students' reports and a comprehensive practical review of the course topics.

Learning and Teaching Resources

Learning and teaching resources

	Text	Available in the Library?
Required Texts	Janick, J. Horticultural Science. Hartmann, H.T., Kester, D.E., Davies, F.T., & Geneve, R.L. Plant Propagation: Principles and Practices. Textbooks on the fundamentals of horticulture and fruit and vegetable production approved in Iraqi Colleges of Agriculture.	Yes

Recommended Texts	Acquaah, G. Horticulture: Principles and Practices. Technical bulletins issued by the Ministry of Agriculture and extension/advisory agencies on nurseries and horticultural crop production.	Partly
Websites	Online / Electronic FAO Horticulture and Plant Production: https://www.fao.org ISHS: https://www.ishs.org Royal Horticultural Society: https://www.rhs.org.uk	

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

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MODULE DESCRIPTION FORM

Module Description Form

Module Information		
Module Information		
Module Title	Agricultural Laws and Regulations	Module Delivery
Module Type	Core	☒ Theory

Module Code	FC2109	☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	Level Two	Semester of Delivery	Third Semester
Administering Department	Field Crops Department	College	College of Agriculture / University of Wasit
Module Leader	Dr. Ali Hashim Abdul- Razzaq	e-mail	-----
Module Leader's Acad. Title	Lecturer	Or PhD in Agricultural Extension	
Module Tutor		e-mail	-----
Peer Reviewer Name	Prof. Dr. Nabil Rahim Lahmood	e-mail	-----
Scientific Committee Approval Date	2025-2026	Version Number	1.0

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	No	Semester	
Co-requisites module	No	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims, Learning Outcomes, and Guiding Contents	
Module Objectives	1. Introduce the student to the concept of agricultural law and legislation and the sources of the legal framework relevant to the agricultural sector and field production. 2. Enable the student to understand the regulatory framework of agricultural institutions and the rights and duties of agricultural producers and workers in fields, nurseries, and production projects. 3. Explain legislation related to the investment of agricultural land, protection of soil and water, trade of seeds, fertilizers, and pesticides, and the regulation of plant quarantine and plant protection. 4. Develop the student's ability to read and analyze legal texts and agricultural administrative instructions and to relate them to the practical reality of the Department of Field Crops. 5. Promote professional and ethical behavior in students in applying agricultural laws and complying with safety, quality, environmental protection, and farmers' rights standards.
Module Learning	LO1: The student defines the basic concepts of law, legislation, regulations, instructions, and administrative controls in the agricultural field. LO2: The student explains the importance of agricultural legislation in regulating field production, protecting natural resources, and ensuring the

Outcomes	safety of agricultural inputs and outputs. LO3: The student distinguishes between legislation related to agricultural land, water, seeds, fertilizers, pesticides, plant quarantine, and agricultural marketing. LO4: The student interprets the relationship between legal responsibility and proper agricultural practice in the field, laboratory, storage, and crop distribution chains. LO5: The student analyzes simplified case studies concerning violations of agricultural or environmental instructions and proposes appropriate corrective measures. LO6: The student utilizes sources of legislation and official instructions to prepare a short legal brief on a specific agricultural topic. LO7: The student discusses the impact of agricultural laws and regulations on supporting food security and sustainable agricultural development. LO8: The student adheres to agricultural professional ethics, respect for public and private property, and teamwork during discussions and class activities.
Indicative Contents	es of agricultural laws and legislation and their relation to The course covers the general principle agricultural sector management, with emphasis on legislation that regulates the investment of eds, agricultural lands, protection of natural resources, and the trade of agricultural inputs such as se fertilizers, and pesticides. The course also addresses plant quarantine, plant protection, occupational safety, legal liability, agricultural cooperatives and associations, agricultural marketing, and protection actual component links legal texts to real cases that a graduate of the agricultural environment. The pr of the Department of Field Crops may encounter in agricultural institutions, production projects, and .extension fields

Learning and Teaching Strategies Teaching and Learning Strategies	
Strategies	The teaching strategy relies on interactive lectures that explain legal concepts in clear language and relate them to real agricultural examples, using class discussions and short case studies to analyze water resources, and marketing. Students are also assigned to ,issues related to land, seeds, pesticides prepare summaries or short presentations on selected agricultural legislation or instructions, and short legal texts and questions and applied assignments are used to strengthen the student's ability to read l .extract practical obligations relevant to field production

Student Workload (SWL) .The student's study load is calculated for 15 weeks			
Structured SWL (h/sem) Regular student study load during .the semester	30	Structured SWL (h/w) .student study load per week Regular	2
Unstructured SWL (h/sem) Irregular student study load during .the semester	20	Unstructured SWL (h/w) .Irregular student study load per week	1.3
Total SWL (h/sem) Total student study load during the .semester	50		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3 quizzes	10% (10 Marks)	Weeks 3, 7, 12	LO1, LO2, LO3
	Assignments	2 assignments	10% (10 Marks)	Weeks 5, 11	LO3, LO4, LO6
	Projects.	Case-study activities	10% (10 Marks)	Weekly / Tutorials	LO4, LO5, LO8
	Reports	1 report or seminar	10% (10 Marks)	Week 14	LO6, LO7, LO8
Summative assessment	Midterm Exam	1 Midterm Exam	20% (20 Marks)	Week 8	LO1, LO2, LO3, LO4
	Final Exam	1 Final Exam	40% (40 Marks)	Week 16	All learning outcomes
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Weekly theoretical syllabus	
	Material Covered
Week 1	ance, and its relation to agricultural Introduction to agricultural law and legislation: concept, sources, import .development
Week 2	Institutional framework of the agricultural sector: relevant ministries and departments, authorities, and administrative .instructions
Week 3	.gricultural workers and professional ethicsRights and duties of the agricultural producer and ag
Week 4	Legislation on agricultural land investment: ownership, leasing, reclamation, and prevention of encroachment on .agricultural lands
Week 5	.atural resource managementLaws and instructions related to soil and water protection and n
Week 6	.Seed and planting material legislation: production, testing, certification, trade, and plant variety protection
Week 7	.or qualityRegulation of fertilizers and soil conditioners: registration, trade, storage, and responsibility f
Week 8	.Midterm exam and applied review of fundamental legal concepts in the agricultural sector
Week 9	.Legislation on pesticides and agricultural chemicals: registration, trade, safe use, and disposal of residues
Week 10	.nd phytosanitary measures: objectives, import and export procedures, and prevention of pest spreadPlant quarantine a
Week 11	Legislation on agricultural production and marketing: market regulation, specifications, quality, and crop distribution .chains
Week 12	.tal laws related to agriculture: agricultural pollution, waste, biodiversity, and biosafetyEnvironmen
Week 13	.Agricultural cooperatives and associations and agricultural contracts: legal organization and mutual obligations
Week 14	.s, and sanctions in agricultural activity: simplified applied casesLegal responsibility, violation
Week 15	Comprehensive review, discussion of student presentations, and linking agricultural legislation to the reality of the .Department of Field Crops

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Delivery Plan (Weekly Tutorial / Applied Syllabus) Weekly Syllabus for Applications and Discussions	
	Material Covered
Week 1	.Applied exercise: distinguishing between law, regulations, instructions, and controls through agricultural examples
Week 2	.of agricultural institutions and regulatory bodies related to field production Drafting a simplified map
Week 3	.Discussion of a case concerning the rights and duties of a farmer or agricultural worker in a production project
Week 4	.ural land or a simple agricultural lease contractAnalysis of a model case on investing agricult
Week 5	.class application on legal obligations related to soil protection and irrigation and drainage water-In
Week 6	n and extracting the main Guided reading of hypothetical or official instructions on seed and seed certificatio .requirements
Week 7	.Exercise on a fertilizer or soil conditioner data sheet, identifying quality and safety elements and legal compliance
Week 8	.Short quiz and applied review of the previous topics
Week 9	.cide label or safe use instructions and identification of hazards and legal responsibilitiesAnalysis of a pesti
Week 10	Simulation of phytosanitary procedures for a plant shipment or imported seeds and identification of required .documents
Week 11	.a field crop and linking it to standards, quality, and consumer protection Case study on marketing
Week 12	Discussion of the effects of agricultural waste and pollution on the environment and identification of preventive .obligations
Week 13	t or agricultural cooperatives and identifying the rights and obligations of the Exercise on an agricultural contrac .parties
Week 14	.Student short report presentations on selected agricultural legislation or instructions and subsequent discussion
Week 15	.analysis of brief cases in preparation for the final exam Comprehensive applied review and

Learning and Teaching Resources		
Learning and teaching resources		
	Text	Available in the Library?
Required Texts	force agricultural legislation and instructions issued by -Collection of in qi Ministry of Agriculture and relevant official authorities. Official the Ira Iraqi agricultural laws, regulations, and instructions issued by the Ministry of Agriculture and relevant authorities. Lecturer's approved th applicable legislation course notes updated annually in accordance wi .and instructions	Yes
Recommended Texts	Selected references in agricultural legislation, agricultural economics, agricultural extension, environmental protection, and natural resource .management	Partly
Websites	Online Ministry of Agriculture - Iraq: https://www.zeraa.gov.iq Iraqi Local Governance and Official Gazette resources: https://www.moj.gov.iq FAOLEX Database: https://www.fao.org/faolex	

Grading Scheme

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

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

Module 9

MODULE DESCRIPTION FORM

Module Description Form

Module Information					
Module Information					
Module Title	English Language		Module Delivery		
Module Type	Support / General Requirement		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☒ Seminar		
Module Code	EN2201				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		Second Stage	Semester of Delivery		Semester 4
Administering Department		Field Crops Department	College	College of Agriculture / University of Wasit	
Module Leader	To be assigned by the department		e-mail	-----	
Module Leader's Acad. Title		Lecturer / Assistant Lecturer	M.A. or Ph.D. in English Language, Applied Linguistics, or English for Specific Purposes (ESP)		
Module Tutor	To be assigned by the department		e-mail	-----	

Peer Reviewer Name	To be assigned by the scientific committee	e-mail	-----
Scientific Committee Approval Date	2025-2026	Version Number	1.0

Relation with other Modules			
p with Other ModulesRelationship			
Prerequisite module	English Language I / Academic Study Skills	Semester	First Stage
Co-requisites module	Scientific Writing / Graduation Project / Agricultural Extension and Communication	Semester	Same or subsequent semesters

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims, Learning Outcomes, and Guiding Contents	
Module Objectives Module Aims	1. Develop the student's ability to use general and academic English in study and professional situations related to agricultural sciences and field crops. 2. Enable the student to read short and medium-length scientific texts and understand main ideas, details, and common agricultural terminology. 3. Train the student to construct correct sentences and paragraphs using basic grammar, tenses, and structures appropriate for simple academic writing. 4. Enhance listening and speaking skills through class discussions and short presentations on agricultural, environmental, and professional topics. 5. Equip the student with skills to write letters, emails, short reports, and scientific summaries in English. 6. Strengthen the student's confidence in using English as a tool for self-learning, accessing scientific sources, and communicating in the agricultural workplace.
Module Learning Outcomes Module Learning Outcomes	LO1: The student defines basic English vocabulary and structures related to university study, agriculture, and field crops; LO2: The student reads short academic and professional texts in English and extracts the main idea and detailed information; LO3: The student applies basic rules of sentence formation, tenses, active and passive voice, linking devices, and comparative forms correctly; LO4: The student writes an organized paragraph, a formal email, a short summary, or a simple report using clear and appropriate language for the academic context; LO5: The student uses listening and speaking skills to participate in class dialogues and short presentations on general and agricultural topics; LO6: The student translates basic agricultural terms and phrases between Arabic and English with attention to scientific meaning and context; LO7: The student employs dictionaries and reliable electronic resources to improve vocabulary, pronunciation, and reading comprehension; LO8: The student presents a short topic in English confidently and in an organized manner, adhering to communication ethics and teamwork.
Indicative Contents Guiding	stage students in the -The course focuses on developing general and academic English skills for second Department of Field Crops, emphasizing scientific reading, agricultural vocabulary, basic grammar, simple academic writing, listening, and speaking. The course integrates general English topics with d crops, such as plant parts, soil, irrigation, pests, harvest, and farm subjects related to agriculture an management. It also includes practical applications in writing paragraphs, short reports, and emails,

Delivery Plan (Weekly Syllabus)	
ical syllabusWeekly theoreti	
	Material Covered
Week 1	.Introduction to the Academic English course: course objectives, language skills, and vocabulary learning strategies
Week 2	.the simple sentence Review of English sentence structure: noun, verb, adjective, adverb, word order, and
Week 3	.Basic English tenses: present, past, and future and their uses in scientific expression
Week 4	.Basic agricultural vocabulary: plant parts, field crops, soil, water, and fertilizers
Week 5	.taking-ng the main idea, details, inferring from context, and noteAcademic reading skills: identifyi
Week 6	.Writing the academic paragraph: topic sentence, supporting sentences, linking devices, and the conclusion
Week 7	.short messages in the agricultural work environment Professional writing: formal email, request for information, and
Week 8	.Midterm exam and grammatical and reading review of previous topics
Week 9	.Active and passive voice and their use in describing experiments and agricultural procedures
Week 10	cientific description: attributes, comparisons, describing simple data, and describing crops and Comparison and s .fields
Week 11	.Reading short texts on soil, irrigation, pests, and harvesting with analysis of scientific terminology
Week 12	.asking questions, answering, discussion, and expressing opinions on agricultural topics :Listening and speaking skills
Week 13	.Summary and short report writing: summarizing an agricultural text or field activity in clear English
Week 14	sentation, presentation language, use of terminology, and handling Short oral presentations: organizing the pre .questions
Week 15	Comprehensive review and integrative applications in reading, writing, speaking, and specialized agricultural .language

Delivery Plan (Weekly Tutorial / Applied Language Practice) Weekly Syllabus for Language Applications	
	Material Covered
Week 1	.Short placement test and academic icebreaker exercises in English and identification of students' language needs
Week 2	.correction, and composing sentences about study and agriculture Practical exercises on word order, sentence
Week 3	.Tense exercises related to describing daily and seasonal tasks in the field and laboratory

Week 4	.n sentencesArabic glossary of field crops and plant parts and using it i-Preparing an English
Week 5	.Reading a short text on crop production and answering comprehension and vocabulary questions
Week 6	.Writing a short paragraph about a field crop or an agricultural operation with group error review
Week 7	.a professor or agricultural institution to request information or arrange a field visit Writing a formal email to
Week 8	.Short test and applied discussion for reading, grammar, and writing
Week 9	.nt or a harvesting operationConverting sentences from active to passive voice to describe steps of an experime
Week 10	.Describing images or simple data on plant growth or crop productivity using comparisons and attributes
Week 11	.Translating and summarizing short agricultural phrases from texts on soil, irrigation, and pests
Week 12	.Listening and speaking activity about an agricultural problem or a situation within a farm or laboratory
Week 13	.Preparing a short English summary of a simplified agricultural text with extraction of key words
Week 14	.group oral presentations on a crop or agricultural practice Delivering short individual or
Week 15	.Comprehensive practical review, language portfolio, and providing final feedback on writing and presentation

Learning and Teaching Resources

Learning and teaching resources

	Text	Available in the Library?
Required Texts	Murphy, R. English Grammar in Use. Cambridge University Press. Soars, J. & Soars, L. New Headway Academic Skills / Oxford University Press. Instructor notes and approved teaching texts in General and Academic English.	Yes
Recommended Texts	Ibbotson, M. English for Engineering / Oxford English for Careers (selected academic language units). Bailey, S. Academic Writing: A Handbook for International Students. Supplementary references in English for academic and professional purposes, and bilingual and specialized dictionaries of agricultural terminology.	Partly
Websites	Online / Electronic Cambridge Dictionary: https://dictionary.cambridge.org British Council LearnEnglish: https://learnenglish.britishcouncil.org Purdue OWL Academic Writing: https://owl.purdue.edu FAO Terminology Portal: https://www.fao.org/faoterm	

Grading Scheme

Grading Scheme

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

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

Location 10

MODULE DESCRIPTION FORM

Module Description Form

Module Information			
Module Information			
Module Title	Computer 2		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	WOU22		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level		Semester of Delivery	
Administering Department	Field Crops	College	College of Agriculture
Module Leader	Assist. Prof. Dr. Huda Lafta Majid	e-mail	husain@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master's
Module Tutor		e-mail	husain@uowasit.edu.iq
Peer Reviewer Name	Dr. Nabil Rahim Lahmood	e-mail	hynajy@uowasit.edu.iq
Scientific Committee Approval Date	2025-3-15	Version Number	1.0

Relation with other Modules	
Relationship with Other Modules	
Prerequisite module	None
Semester	

Co-requisites module	None	Semester	
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Module Aims, Learning Outcomes and Indicative Contents

Module Aims, Learning Outcomes, and Guiding Contents

Identify computer components and the function of each part, and determine the hardware, software, and computer applications necessary to operate them and .complete tasks	Module Objectives Module Aims
etical lectures to convey information to students using the following Deliver theor means: (blackboard, data projector, interactive lecture, educational video .(presentation Conduct practical sessions through observation and interaction with field or .laboratory aspects	Module Learning Outcomes Module Learning Outcomes
.Conduct quick daily tests .Assessing students through submission of academic reports and oral presentations .Conducting monthly examinations .Conducting practical examinations .Conducting final examinations	Indicative Contents Guiding Contents

Learning and Teaching Strategies

Teaching and Learning Strategies

Deliver theoretical lectures to convey information to students using the following means: (blackboard, data projector, interactive lecture, educational video .(presentation tical sessions through observation and interaction with field or Conduct prac .laboratory aspects	Strategies
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Student Workload (SWL)

.The student's study load is calculated for 15 weeks

Structured SWL (h/sem) Regular student study load during the .semester	45	Structured SWL (h/w) .Regular student study load per week	15
Unstructured SWL (h/sem) Irregular student study load during the .semester	5	Unstructured SWL (h/w) .Irregular student study load per week	10
Total SWL (h/sem)	75		

Total student study load during the .semester	
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Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	1	10% (10)	Continuous	1,2,3,4,5,6
	college -In assignments	15	10% (10)	Continuous	1,2,3,4,5,6
	Homework assignments	1	15% (15)	Continuous	1,2,3,4,5,6,7,8,9,10,11,12,13,14,
	Reports	1	5% (5)	Continuous	1,2,3,4,5,6
Summative assessment	Midterm exam	2hr	10% (10)	14	1,2,3,4,5,6
	Final exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)	
Weekly Syllabus for the Laboratory	
Material Covered	
What is a computer? / Characteristics of computers / Components of a computer / Types of computers	Week 1
The main components of the personal computer	Week 2
nd their typesOperating systems a	Week 3
Network setup	Week 4
Telecommunication networks and global communication	Week 5
The Internet	Week 6
Daily life and the computer	Week 7
Security, copyright, and the law	Week 8
Working with menus and icons	Week 9
enuDesktop quick m	Week 10

Windows Explorer	Week 11
on programs with Windows-Using some add	Week 12
How to improve the appearance of screen fonts when using flat LCD screens or laptops	Week 13
?What is the firewall available in Windows XP and how do I enable it	Week 13
Dynamic disk	Week 14

Learning and Teaching Resources

Learning and teaching resources

	Text	Available in the Library?
Required Texts	Book: Principles of Computer Science, Software User Guide	Yes
Recommended Texts	Scientific articles	No
Websites	No	

Grading Scheme

Grading Scheme

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

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

MODULE DESCRIPTION FORM

Module Information					
Module Title	Oilseed and Sugar Crops		Module Delivery		
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar		
Module Code	FC2211				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		UGx11 1	Semester of Delivery		1
Administering Department		Department of Field Crops	College	College of Agriculture	
Module Leader	Prof. Dr. Riyadh Jabbar Mansour Maliki-AI		e-mail	ralmaliki@uowasit.edu.iq	
Module Leader's Acad. Title		Professor	Module Leader's Qualification		PhD
Module Tutor	Asst. Lecturer Hussein Ta'mah		e-mail		
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date		2026	Version Number	1.0	

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents
Aims, Learning Outcomes, and Guiding Contents Module

Module Objectives	1. Recognizing the economic, nutritional, and industrial importance of oilseed and sugar crops 2. Understanding the scientific principles of cultivation and production of soybean, sunflower, sesame, canola, and of oilseed crops such as flax 3. Studying sugar crops such as sugarcane and sugar beet in terms of environmental conditions and growth requirements 4. Identifying factors affecting the yield and quality of oilseed and sugar crops 5. Familiarizing with various field operations (ploughing, planting, irrigation, fertilization, pest control, harvesting) 6. Acquiring crop management skills to achieve the highest possible productivity at the lowest economic cost 7. Understanding harvesting methods, post-harvest treatments, and the extraction of oils or sugar 8. Analyzing agricultural problems confronting the production of these crops and proposing appropriate solutions 9. Developing students' skills in agricultural planning and scientific management of field crops 10. Promoting the concept of sustainable agriculture in the production of oilseed and sugar crops
Module Learning Outcomes	First: Knowledge and Understanding 1. Defining oilseed and sugar crops and stating their economic, nutritional, and industrial importance 2. Describing the botanical and environmental characteristics of oilseed crops such as soybean, sunflower, sesame, flax, and canola 3. Explanation of growth and production requirements of sugar crops such as sugarcane and sugar beet 4. Fundamental field operations in the production of these crops Second: Intellectual Skills 5. Analysis of factors affecting the productivity and quality of oilseed and sugar crops 6. Comparison among different crop varieties in terms of productivity, environmental suitability and environment 7. Evaluation of field problems encountered in cultivating these crops and proposing appropriate solutions Third: Practical Skills 8. Application of agricultural operations (planting, irrigation, scientific principles fertilization, pest control) according to scientific principles

	9. Preparation of simplified agricultural programs for the production of oilseed or sugar crops 10. harvest handling, and -Familiarization with harvesting methods, post extraction of oils or sugar Fourth: General and Transferable Skills 11. development of teamwork skills within field or agricultural laboratory settings 12. Use of scientific thinking in making agricultural decisions 13. Enhancement of planning skills and sustainable management of agricultural production 14. .to actual field applications Linking theoretical knowledge
Indicative Contents	1. Introduction to oilseed and sugar crops - o Importance of oilseed and sugar crops - o Food, industrial, and economic uses 2. Classification of oilseed crops - o x, Major field oilseed crops (soybean, sunflower, sesame, flax (canola) - o Composition of oilseeds and oil content 3. Production of oilseed crops - o (Favorable environmental conditions (soil, climate) - o (Field operations (plowing, planting, fertilization, irrigation) - o Plant growth management 4. f oilseed cropsharvest handling o-Harvesting and post - o Harvesting methods - o Drying and storage - o Extraction of vegetable oils 5. Sugar crops - o (Introduction to sugar crops (sugarcane, sugar beet) - o Importance of sugar and its sources 6. Production of sugar crops - o Suitable environmental conditions - o tural operationsBasic agricul - o Irrigation and fertilization management 7. Harvesting and processing of sugar crops - o Harvesting methods - o Sugar extraction and processing stages - o Quality and storage 8. Integrated crop management - o Pest and disease control - o Weed management - o oductivity and qualityImproving pr 9. Modern techniques in the production of oilseed and sugar crops - o Improved varieties and hybrids - o Agricultural Mechanization - o Sustainable Agriculture 10. Production Problems and Solutions

	• Field Challenges • Use Losses Methods to Improve Production and Red
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Learning and Teaching Strategies Teaching and Learning Strategies	
Strategies	1. Interactive lecture ○ Presenting the basic concepts of oilseed and sugar crops while opening the floor for discussion and questions to enhance understanding 2. Based on Observation and Experimentation Learning ○ Using plant specimens and real seeds to identify crop characteristics and growth stages 3. Collaborative learning ○ Dividing students into groups to carry out activities such as comparing results on sugar crop soilseed crops or preparing reports 4. Based Learning-Problem ○ Presenting field problems (low yield, insect infestations, nutrient deficiencies) and asking for appropriate scientific solutions 5. Case study ○ Analyzing real agricultural cases of oilseed or sugar crop farms and evaluating agricultural performance 6. Presentations ○ Assigning students to prepare presentations on each crop regarding cultivation, production, and field practices 7. Practical Field Learning ○ Conducting field visits to agricultural plots to observe crop growth stages in situ 8. Brainstorming ○ Encouraging students to propose methods to improve productivity and reduce losses in crops 9. directed learning-Self ○ Encouraging students to research modern scientific sources and agricultural journals 10. based learning-Project • Preparing an integrated project on the production of an oilseed or sugar crop from cultivation through harvest and marketing

Student Workload (SWL)			
.The student's study load is calculated for 15 weeks			
Structured SWL (h/sem) ing Regular student study load dur .the semester	78	Structured SWL (h/w) .Regular student study load per week	5
Unstructured SWL (h/sem) Irregular student study load during .the semester	97	Unstructured SWL (h/w) .Irregular student study load per week	6
Total SWL (h/sem) study load during the Total student .semester	175		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	15	LO #1 - #14
	Assignments	1	10% (10)	6	LO #1 - #5
	Projects / Lab.	1	10% (10)	7	LO #1 - #6
	Report	1	10%	14	LO #1 - #14
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

Weekly theoretical syllabus

	Material Covered
Week 1	Introduction to Oilseed and Sugar Crops and Their Economic and Nutritional Importance
Week 2	Classification of Oilseed and Sugar Crops and Major Cultivated Types
Week 3	Environmental Factors Affecting the Growth of Oilseed Crops
Week 4	(Field Operations for Oilseed Crops (Plowing, Planting, Field Management
Week 5	Fertilization and Irrigation in Oilseed Crops
Week 6	Pest and Disease Control in Oilseed Crops
Week 7	Harvesting of Oilseed Crops and Postharvest Handling
Week 8	xtraction of Vegetable Oils and Production MethodsE
Week 9	(Introduction to Sugar Crops and Their Importance (Sugarcane, Sugar Beet
Week 10	Environmental Conditions and Growth Requirements of Sugar Crops
Week 11	Field Operations for Sugar Crops
Week 12	Irrigation and Fertilization in Sugar Crops
Week 13	Pest and Disease Control in Sugar Crops
Week 14	Harvesting Sugar Crops and Sugar Extraction
Week 15	General Review + Practical Applications and Case Studies
Week 16	Examination + Research Discussions

Delivery Plan (Weekly Lab. Syllabus)

Weekly Syllabus for the Laboratory

	Material Covered
Week 1	Introduction to the Laboratory and Agricultural Work Tools and Safety Procedures
Week 2	Recognizing and Identifying Seeds of Oilseed and Sugar Crops
Week 3	(Examining Seed Traits (Size, Shape, Purity, Viability
Week 4	Germination of Oilseed Crop Seeds under Different Conditions
Week 5	Germination of Sugar Crop Seeds and Monitoring Early Growth Stages
Week 6	(g, Harrowing, Levelling Soil Preparation for Cultivation (Plow in
Week 7	Different Planting Methods for Oilseed and Sugar Crops
Week 8	Applying Irrigation Operations and Monitoring Water Requirements
Week 9	Applying Organic and Chemical Fertilizers Practically
Week 10	nutrient Deficiencies on the Plant Observing Symptoms of Nu
Week 11	Practical Weed Control and Management Methods
Week 12	Familiarization with the major insect pests and field diseases
Week 13	(Estimation of productivity for oil crops (oil percentage in simplified form
Week 14	harvesting, drying, and storage operations for oil and sugar crops H
Week 15	Comprehensive practical applications + preparation of a final report on a complete agricultural experiment

Learning and Teaching Resources

Learning and teaching resources

	Text	Available in the Library?
Required Texts	First: Core textbooks and primary references –Production of Field Crops (oil and sugar crops) .University textbooks in the Department of Field Crops Crop Production and Management – Modern books on	Yes

	field crops production. Field Crops – Norman E. Borlaug / or similar references in Field Crops. Principles of Field Crop Production – John H. Martin.	
Recommended Texts	Reliable scientific journals, scientific reports). Bulletins of) .specific to Field Crops the Iraqi Ministry of Agriculture	Both
Websites		

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

Module 11

MODULE DESCRIPTION FORM

Module Description Form

Module Information				
Module Information				
Module Title	Soil Microbiology and Soil Health		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☒ Seminar	
Module Code	SC2202			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	Level Two	Semester of Delivery		Semester 4
Administering Department	Department of Field Crops	College	University of / College of Agriculture Wasit	
Module Leader	Huda Jawad Kazem-Dr. Noor al		e-mail	-----
Module Leader's Acad. Title	Lecturer or Assistant Professor	M.Sc. or Ph.D. in Soil Microbiology, Soil Science, or Agricultural Microbiology		
Module Tutor	Dr. Buraq Musa Ali		e-mail	-----
Peer Reviewer Name	Prof. Dr. Nabil Rahim Lahmood		e-mail	-----
Scientific Committee Approval Date	2025-2026	Version Number	1.0	

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	No	Semester	2
Co-requisites module	No	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims, Learning Outcomes, and Guiding Contents	
Module Objectives Module Aims	1. Introduce the student to the field of soil microbiology and the main microbial groups and their role in soil fertility and agroecosystem health. 2. Enable the student to understand the relationship of microorganisms to nutrient cycles, organic matter decomposition, nitrogen fixation, and solubilization of phosphorus and mineral elements. 3. Train the student in the basic principles of isolating, cultivating, and examining soil microorganisms using safe and organized laboratory methods. 4.

	Explain the impact of soil and crop management, tillage, fertilization, irrigation, and pesticides on microbial activity and community diversity. 5. Develop the student's ability to link microbial indicators to soil health, field crop productivity, and agricultural sustainability. 6. Enhance skills in biosafety, precise laboratory work, and the preparation of scientific reports related to soil microbiology.
Module Learning Outcomes Module Learning Outcomes	LO1: The student defines the basic concepts of soil microbiology and its major groups such as bacteria, fungi, actinomycetes, algae, protozoa, and viruses. LO2: The student explains the role of microorganisms in organic matter decomposition, humus formation, and the cycles of carbon, nitrogen, phosphorus, and sulfur. LO3: The student distinguishes between beneficial, pathogenic, and neutral microorganisms in the soil and crop root environment. LO4: The student applies laboratory safety procedures and methods of sterilization, sampling, preparation of dilutions, and cultivation of microorganisms. LO5: The student interprets the relationships among the rhizosphere, mycorrhizae, rhizobia, and biofertilizers and their effects on field crop growth. LO6: The student analyzes the effect of soil management practices and agricultural inputs on microbial activity and soil health. LO7: The student uses results from microbial counts and microscopic observations to prepare a short, documented scientific report. LO8: The student discusses the importance of microbial diversity in soil for supporting agricultural sustainability and reducing unwise reliance on chemical inputs.
Indicative Contents Guiding Contents	The course addresses the scientific and practical principles of soil microbiology and soil health, presenting the characteristics of major microbial groups, their habitats, and their functional roles in terms. The course focuses on the role of microorganisms in decomposition of organic agricultural residues, humus formation, nutrient cycles, biological nitrogen fixation, phosphorus solubilization, crop management practices to mycorrhizae, the rhizosphere, and biofertilizers. It also links soil and microbial activity, and includes laboratory applications in sampling, sterilization, cultivation, counting, microscopic examination, and interpretation of results to serve students of the Department of .Field Crops

Learning and Teaching Strategies Teaching and Learning Strategies	
Strategies	The teaching strategy relies on interactive lectures supported by illustrations, micrographs, and examples on soil agricultural examples related to field crops, together with organized laboratory experiments on sampling, sterilization, preparation, cultivation, microbial counting, and microscopic examination. Class discussions and case studies are used to link microbial activity with soil management, and students are assigned short laboratory reports and brief fertilization, biofertilizers, and plant health. Student presentations to develop scientific thinking skills, biosafety, result interpretation, and teamwork

Student Workload (SWL) The student's study load is calculated for 15 weeks			
Structured SWL (h/sem) Regular student study load during the semester	45	Structured SWL (h/w) Regular student study load per week	3
Unstructured SWL (h/sem) Irregular student study load during the semester	55	Unstructured SWL (h/w) Irregular student study load per week	3.7
Total SWL (h/sem)	100		

Total student study load during the .semester	
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Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3 quizzes	10% (10 Marks)	Weeks 3, 7, 12	LO1, LO2, LO3
	Assignments	2 assignments	10% (10 Marks)	Weeks 5, 11	LO5, LO6, LO8
	Projects / Lab.	Lab reports and practical activities	15% (15 Marks)	Weekly / Lab	LO4, LO7, LO8
	Reports	1 seminar or mini report	5% (5 Marks)	Week 14	LO5, LO6, LO8
Summative assessment	Midterm Exam	1 Midterm Exam	20% (20 Marks)	Week 8	LO1, LO2, LO3, LO5
	Final Exam	1 Final Exam	40% (40 Marks)	Week 16	All learning outcomes
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Weekly theoretical syllabus	
	Material Covered
Week 1	.Introduction to soil microbiology: concept, history, agricultural importance, and its relation to soil health
Week 2	.Soil environment as a medium for microbial growth: moisture, temperature, aeration, pH, and organic matter
Week 3	.Major groups of soil microorganisms: bacteria, fungi, actinomycetes, algae, protozoa, and viruses
Week 4	.The rhizosphere and interactions between roots and microorganisms and their impact on crop growth
Week 5	.us formation, and the role of microbial enzymes in soilDecomposition of organic residues, hum
Week 6	.The carbon cycle in soil: decomposition, microbial respiration, and carbon dioxide emissions
Week 7	.en fixationThe nitrogen cycle: mineralization, nitrification, denitrification, and biological nitrog
Week 8	.Midterm exam and practical review of microbiological concepts and nutrient cycles
Week 9	The phosphorus and sulfur cycles and the role of microorganisms in solubilizing and mobilizing elements for plant .uptake
Week 10	.promoting bacteria-ationships: rhizobia, mycorrhizae, and plant growthSymbiotic rel
Week 11	.Biofertilizers and microbial inoculants: types, production, use, and quality control
Week 12	.in reducing root diseases Soil pathogenic microorganisms and biological control, and the role of microbes
Week 13	The impact of agricultural practices on microbial communities: tillage, fertilization, irrigation, pesticides, and crop .rotations
Week 14	.rop systemsMicrobial indicators of soil health, biodiversity, and sustainability in field c

Week 15	Comprehensive review, discussion of students' reports, and linking soil microbiology to sustainable field production .management

Delivery Plan (Weekly Laboratory Syllabus)	
	Material Covered
Week 1	.n the microbiology laboratory and familiarization with basic tools and equipmentBiosafety instructions i
Week 2	.Methods for soil sampling, preservation, and preparation for microbial analysis
Week 3	.Sterilization and preparation of media and safe pouring of plates
Week 4	.eparation of serial dilutions for a soil sample and calculation of dilution factorsPr
Week 5	.Cultivation of soil microorganisms using pour or spread plating methods and observation of colony growth
Week 6	.forming units per gram of soil-Total microbial counting and estimation of colony
Week 7	.Basic microscopic examination and recognition of general forms of bacteria and fungi
Week 8	.Short quiz and laboratory review of the preceding basic skills
Week 9	.d comparison of developing coloniesIsolation of fungi and actinomycetes from soil an
Week 10	.Observation or preparation of specimens of rhizobial root nodules and interpretation of their agricultural significance
Week 11	.on to phosphorus and water uptakeObservation of specimens or slides of mycorrhizae and discussion of their relati
Week 12	.A simplified experiment on organic matter decomposition or estimation of microbial activity in different soil samples
Week 13	l activity through an applied case Discussion of the effect of organic or mineral fertilizers or pesticides on microbia .study
Week 14	.Presentation of short laboratory reports on a biofertilizer or a beneficial microorganism in the soil
Week 15	results in preparation Comprehensive practical review and interpretation of enumeration, culturing, and examination .for the final exam

Learning and Teaching Resources		
Learning and teaching resources		
	Text	Available in the Library?
Required Texts	Sylvia, D.M., Fuhrmann, J.J., Hartel, P.G., & Zuberer, D.A. Principles and Applications of Soil Microbiology. Paul, E.A. Soil Microbiology, Ecology and Biochemistry. Approved practical and theoretical lecturer's notes in soil microbial biology and soil health.	Yes
Recommended Texts	Coyne, M.S. Soil Microbiology: An Exploratory Approach. Brady, N.C. & Weil, R.R. The Nature and Properties of Soils. References on soil fertility, soil environment, biofertilizers, and soil health.	Partly
Websites	Online FAO Soils Portal: https://www.fao.org/soils-portal ; USDA Natural Resources Conservation Service - Soil Biology: https://www.nrcs.usda.gov ; Soil Science Society of America: https://www.soils.org	

Grading Scheme
Grading Scheme

Group	Grade	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	Excellent	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
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	F – Fail	Fail	(0-44)	Considerable amount of work required

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Module 2

MODULE DESCRIPTION FORM

Module Description Form

Module Information				
Module Information				
Module Title	Plant Environment		Module Delivery	
Module Type	S		☐ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	FC2210			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level			Semester of Delivery	1
Administering Department		Field Crops Science	College	Agriculture
Module Leader	Muhannad Ismail .Asst. Prof. Dr Khalbass		e-mail	albwmoanad@uowasit.edu.iq
Module Leader's Acad. Title			Module Leader's Qualification	

Module Tutor	Name Asst. Lecturer Wameed Majid	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	15/5/2026	Version Number	1.0

Relation with other Modules

Relationship with Other Modules

Prerequisite module	None	Semester	1
Co-requisites module	None	Semester	1

Module Aims, Learning Outcomes and Indicative Contents

Learning Outcomes, and Guiding ContentsModule Aims, Learning O

1. Identify the concept of plant environment and its importance in agricultural production 2. Understand the effects of different environmental factors on plant growth and development 3. Understand its surrounding environment 4. Explain the relationship between the plant and its surrounding environment 5. Identify plant responses to various environmental changes 6. Understand the effect of climatic and edaphic factors on the distribution and productivity of plants 7. Analyze environmental problems affecting plants and agricultural crops 8. Link environmental principles to agricultural applications and crop production 8. Develop the ability to assess suitable environmental conditions for the growth of different crops	Module Objectives Module Aims
First: Knowledge and Understanding 1. Explain the fundamental concepts in plant environment science 2. Describe the environmental factors affecting plant growth and distribution 3. Explain the influence of climate, soil, water, and biotic factors on the plant environment Second: Intellectual Skill 4. Analyze the impact of various environmental factors on the growth of agricultural crops 5. Interpret plant responses to environmental stresses 6. Compare different environments and their suitability for plant growth Third: Practical and Professional Skills	Module Learning Outcomes Module Learning Outcomes

7. .Evaluate suitable environmental conditions for crop production 8. Apply environmental concepts to solve agricultural problems related to crop .production 9. .Interpret the environmental distribution of different plants and crops Skills Fourth: General and Transferable 10. .Use scientific sources to obtain environmental information related to plants 11. .Prepare scientific reports on the effects of environmental factors on plants 12. Develop scientific thinking, analysis, and inference skills in the study of the .nmentplant enviro	
ecneicS tnmnorivnE tnalP ot noitcudortnl • 1. .The concept of plant environment and its importance 2. .Levels of ecological organization stnalp gnitceffa srotcaf citamilC • 3. .Light 4. .Temperature 5. .ityAir humid 6. .Wind retaw dna stnalp neewteb pihsnoitaler ehT • 7. .The importance of water for plants 8. .Water absorption and transport 9. .Effects of drought and flooding stnalp ot pihsnoitaler sti dna lioS • 10. .Physical and chemical properties of soil 11. .lant growthEffects of soil on p srotcaf citoiB • 12. .Competition among plants 13. .Parasitism and symbiosis 14. .Effects of other organisms on plants stnmnorivne tnalp tnereffiD • 15. .Desert environments 16. .Humid environments 17. .Aquatic environments srotcaf latnmnorivne ot sesnopser tnalP • 18. .Structural and physiological adaptations 19. .Resistance to environmental stresses stnalp no stceffe rieht dna sesserts latnmnorivnE • 20. .Drought 21. .Salinity 22. .High and low temperatures stnalp fo noitubirtsid cihpargoE • 23. .Factors affecting plant distribution 24. .getation regionsVe ygoloe tnalp fo snoitacilppa larutlucirGA • 25. .Management of the agricultural environment 26. .Improving crop productivity under varying environmental conditions 27. Climate change and its effects on agricultural production	Indicative Contents Guiding Contents

Learning and Teaching Strategies	
Teaching and Learning Strategies	
- Interactive lecture: Presenting basic environmental concepts while engaging students in class discussions and questions - related to plant Brainstorming: Presenting environmental problems and crop growth and encouraging students to propose appropriate solutions - Group discussion: Discussing the effects of various environmental factors on plant growth and productivity - tudy specific Cooperative learning: Dividing students into groups to s environmental topics and present their findings to the class - Problem solving: Analyzing cases related to environmental stresses such as drought and salinity and their effects on agricultural crops - ferent agricultural Case study: Presenting real examples of dif environments and examining the factors affecting the success or failure of plant production therein - based learning: Encouraging students to research and gather -Inquiry information on plants' environmental adaptations - arning: Assigning students to prepare reports or directed lea-Self presentations on selected topics in plant environment - Use of educational media and modern technologies: Employing images, illustrations, video clips, and presentations to clarify environmental concepts - inuous feedback: Through short quizzes, assignments, and class Cont discussions to assess understanding and improve educational performance - based learning: Assigning students to prepare small -project-Mini or on the growth projects on the effect of a specific environmental fact of plants or crops - Linking the subject to agricultural reality: By discussing local environmental problems that affect agricultural production and finding appropriate solutions	Strategies

Student Workload (SWL)			
.load is calculated for 15 weeks The student's study			
Structured SWL (h/sem)	78	Structured SWL (h/w)	5
Regular student study load during the		.Regular student study load per week	

.semester			
Unstructured SWL (h/sem) Irregular student study load during the .semester	72	Unstructured SWL (h/w) .Irregular student study load per week	5
Total SWL (h/sem) Total student study load during the .semester	150		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	sTest	1	10% (10)	7	LO #1 - #6
	college -In assignments	1	10% (10)	15	LO #1 -#15
	Homework assignments	1	10% (10)	8	LO #1 - #7
	Reports	1	10% (10)	15	LO #1 - #14
Summative assessment	Midterm exam	2hr	10% (10)	7	LO #1 - #6
	Final exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Weekly theoretical syllabus	
Topic	Week
Introduction to plant ecology, basic concepts, and the importance of the environment in .plant life	1
relationship between living organisms and The ecosystem and its components, and the .the environment	2
.Light: its properties and its effect on plant growth and distribution	3

.Temperature and its effect on the plant's physiological processes	4
.rption, transport, and lossWater and its relationship with plants: water abso	5
.Air humidity and wind and their effects on plant growth	6
.Soil and its relationship with plants: the soil's physical and chemical properties	7
.(Biotic factors affecting plants (competition, symbiosis, parasitism	8
.t midterm exam and review of previous materialFirs	9
.Plant responses to environmental factors and various environmental adaptations	10
.Water stress and drought and their effects on plant growth and productivity	11
.gricultural cropsSalinity and its effects on plants and a	12
.Effects of high and low temperatures on plants and mechanisms of adaptation	13
Geographical distribution of plants, phytogeographical regions, and the factors affecting .them	14
change and its impact on agricultural Agricultural applications of plant ecology, climate .production, and a comprehensive review of the subject	15

Learning and Teaching Resources

Learning and teaching resources

	Text	Available in the Library?
Required Texts	.ologyTai, Abdul Karim Muhammad et al. Plant Ec-Al Younis, Muayyad Ahmed. -Abu Dahhi, Yusuf Muhammad and Al .Fundamentals of Botany	Yes
Recommended Texts	Scientific journals, reports, electronic references, Internet .websites	No

Grading Scheme

Grading Scheme

Group	Grade	Grade	Marks %	Definition
Success Group (50 - 100)	A - Excellent	Excellent	90 - 100	Outstanding Performance
	B - Very Good	Very Good	80 - 89	Above average with some errors
	C - Good	Good	70 - 79	Sound work with notable errors
	D - Satisfactory	Average	60 - 69	Fair but with major shortcomings

	E - Sufficient	Acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	Failed (under processing)	(45-49)	More work required but credit awarded
	F – Fail	Failed	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

MODULE DESCRIPTION FORM

Module Description Form

Module Information					
Module Information					
Module Title	Crop Insects and Bee Management		Module Delivery		
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☒ Tutorial ☒ Practical ☒ Seminar		
Module Code	PP2201				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level		Second Stage	Semester of Delivery		Semester 4
Administering Department		Field Crops Department	College	College of Agriculture / University of Wasit	
Module Leader	Prof. Dr. Hassanein Taher Kareem		e-mail	-----	
Module Leader's Acad. Title		Assistant Professor	PhD in Entomology and Apiculture		
Module Tutor	Asst, Amer Jasim Tofan		e-mail	-----	
Peer Reviewer Name		Dr. Nabil Rahim hmoodyLa	e-mail	-----	
Scientific Committee Approval Date		2025-2026	Version Number	1.0	

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	Principles of Plant Protection / General Zoology / Field Crop Production	Semester	First Stage
Co-requisites module	Integrated Pest Management / Plant Pathology / Crop Production Systems	Semester	Same or subsequent semesters

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims, Learning Outcomes, and Guiding Contents	
Module Objectives Module Aims	1. Introduce the student to fundamental concepts in agricultural entomology and the major field crop insects and their economic damage. 2. Enable the student to understand insect morphology, life cycles, ecology, and methods for diagnosing the different stages of harmful and beneficial insects. 3. Train the student in principles of integrated pest management and link these to sustainable and safe field crop management. 4. Explain the importance of honey bees and pollinators in increasing agricultural production, improving seed and fruit quality, and conserving biodiversity. 5. Impart basic knowledge to the student in hive management, nutrition, routine inspection, prevention of diseases and pests, and production of honey and hive products. 6. Develop the student's ability to prepare preliminary recommendations for managing insect pests and bees based on field observation, records, and scientific diagnosis.
Module Learning Outcomes Module Learning Outcomes	LO1: The student defines the insect orders that are agriculturally important and the general characteristics that help distinguish beneficial from harmful insects. LO2: The student explains types of insect damage in field crops and the relationship between infestation, plant growth stage, and environmental conditions. LO3: The student identifies the main insects of cereals, legumes, oilseed and industrial crops, and stored products, and their monitoring methods. LO4: The student applies principles of field sampling, insect collection, preservation, and laboratory examination in an organized and safe manner. LO5: The student interprets the concept of integrated pest management and the use of cultural, mechanical, biological, and judicious chemical control. LO6: The student describes the components of a honey bee colony, its behavior, and the roles of the queen, workers, and drones in the hive. LO7: The student applies basic apiary management principles regarding site selection, inspection, feeding, splitting, prevention, and honey harvesting. LO8: The student discusses the role of bees and pollinators in improving production of field and orchard crops and supporting sustainable agriculture.
Indicative Contents Guiding Contents	ons of crop insects and bee management, The course covers the scientific and practical foundati presenting principles of insect taxonomy, morphology, life cycles, and the types of damage they cause in field crops. The course focuses on the major pests of cereals, legumes, oilseed and industrial crops, d products, and on monitoring methods, sampling techniques, and integrated pest and store management. The course also includes a practical component on honey bee management, colony pests, honey components, colony behavior, feeding, routine inspection, prevention of diseases and .harvesting, and the role of bees in pollination and increasing agricultural production

Learning and Teaching Strategies	
Teaching and Learning Strategies	
Strategies	nsect specimens, diagnostic The teaching strategy relies on interactive lectures supported by images, i keys, and comparison tables between pests, along with laboratory and field applications in sample collection, insect diagnosis, damage assessment, and discussion of integrated control decisions. Short ies on insect infestations in field crops and hive management are also presentations and case stud used, in addition to practical reports to develop observation, diagnostic, safety, critical thinking, and .teamwork skills

Student Workload (SWL)			
.d for 15 weeksThe student's study load is calculate			
Structured SWL (h/sem) Regular student study load during .the semester	45	Structured SWL (h/w) .Regular student study load per week	3
Unstructured SWL (h/sem) Irregular student study load during .the semester	55	Unstructured SWL (h/w) .egular student study load per weeklrr	3.7
Total SWL (h/sem) Total student study load during the .semester	100		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3 quizzes	10% (10 Marks)	Weeks 3, 7, 12	LO1, LO2, LO3
	Assignments	2 assignments	10% (10 Marks)	Weeks 5, 11	LO5, LO6, LO8
	Projects / Lab.	Lab reports and practical activities	15% (15 Marks)	Weekly / Lab	LO4, LO7, LO8
	Reports	1 seminar or mini report	5% (5 Marks)	Week 14	LO3, LO5, LO8
Summative assessment	Midterm Exam	1 Midterm Exam	20% (20 Marks)	Week 8	LO1, LO2, LO3, LO5
	Final Exam	1 Final Exam	40% (40 Marks)	Week 16	All learning outcomes
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
Weekly theoretical syllabus	
	Material Covered
Week 1	Introduction to agricultural entomology: economic importance, harmful and beneficial insects, and their relationship to field crops
Week 2	General insect characteristics: external morphology, mouthparts, legs, wings, and adaptations related to the type of damage
Week 3	Growth and development in insects: metamorphosis, insect stages, reproduction, and environmental factors affecting pest spread
Week 4	Insects and the insect orders important in agriculture with examples of crop pests Principles of insect classification
Week 5	Types of insect damage in field crops and methods for estimating infestation and economic losses
Week 6	Insect management methods Insects of cereal crops: wheat, barley, maize, and rice and their damage
Week 7	Insects of legume, oilseed, and industrial crops and the main symptoms of their infestation
Week 8	Midterm exam and diagnostic review of the main field insects and damages
Week 9	Prevention and control in grain and seed storage product and seed insects and methods Stored
Week 10	Integrated pest management: monitoring, economic threshold, cultural, mechanical, and biological control
Week 11	Safe use of pesticides: selection, dosages, safety, resistance, and safety intervals
Week 12	Introduction to honey bees and pollinators: agricultural and economic importance and their role in pollination
Week 13	Biology of the honey bee colony: queen, workers, drones, social behavior, and the bee life cycle
Week 14	Honey bee management: site selection, hive establishment, routine inspection, feeding, splitting, diseases and pests Apiary
Week 15	Honey harvesting and hive products, comprehensive review, and linking insect and bee management to sustainable field production

Delivery Plan (Weekly Laboratory / Applied Syllabus)	
	Material Covered
Week 1	Safety instructions in the entomology laboratory and familiarization with collection, examination, mounting, and preservation tools
Week 2	General insect morphology and identification of body parts and appendages using a hand lens and Examination of insect external morphology using a dissecting microscope
Week 3	Distinguishing types of mouthparts, legs, and wings and relating them to feeding habits and crop damage
Week 4	Identifying preserved specimens and classifying them into major insect orders Collecting insect samples or studying insect behavior
Week 5	Diagnosing insect damage symptoms in leaves, stems, roots, panicles/ears, and seeds of field crops

Week 6	.n rate and insect density in a field crop Practical application of field sampling and estimation of infestation
Week 7	.Identification of insects of cereals, legumes, and oilseeds from specimens or diagnostic images
Week 8	.Short quiz and laboratory review of diagnostic characters and economic damages
Week 9	.product insect samples and diagnosis of infestation symptoms in stored grains and seeds-of stored Examination
Week 10	Preparing a simplified integrated pest management plan for an insect pest in a field crop according to the economic threshold
Week 11	.reading a pesticide label and identifying precautions, the safety interval, and safe application methods Training in
Week 12	.Familiarization with hive components, beekeeping tools, and apiary establishment requirements
Week 13	.ional models to identify the queen, workers, drones, brood, and food stores Inspection of a brood frame or education
Week 14	.Bee management practices: routine inspection, feeding, splitting, prevention of Varroa and common diseases
Week 15	ort reports on an insect pest or a successful beekeeping Comprehensive practical review and presentation of short practice

Learning and Teaching Resources		
Learning and teaching resources		
	Text	Available in the Library?
Required Texts	Pedigo, L.P. & Rice, M.E. Entomology and Pest Management. Gullan, P.J. & Cranston, P.S. The Insects: An Outline of Entomology. Approved practical and theoretical lecture notes on crop insects and honey bee management.	Yes
Recommended Texts	Daly, H.V., Doyen, J.T., & Purcell, A.H. Introduction to Insect Biology and Diversity. Root, A.I. The ABC and XYZ of Bee Culture. Hooper, T. Guide to Bees and Honey. References on agricultural insects, integrated pest management, and the breeding and management of honey bees.	Partly
Websites	Online FAO Integrated Pest Management: https://www.fao.org/pest-and-pesticide-management/ipm FAO Pollination Services: https://www.fao.org/pollination UC IPM: https://ipm.ucanr.edu Bee Health Extension: https://bee-health.extension.org	

Grading Scheme				
Grading Scheme				
Group	Grade	Grade	Marks %	Definition
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Module 9

MODULE DESCRIPTION FORM

Module Description Form

Module Information			
Module Information			
Module Title	Irrigation and Drainage		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	SC2203		
ECTS Credits	5		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	1
Administering Department	Field Crops	College	Agriculture
Module Leader	Dr. Zahraa Khalid	e-mail	zhkalid@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	PhD
Module Tutor	Asst. Lecturer Yahya Radi	e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	2026 - 2025	Version Number	1.0

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims, Learning Outcomes, and Guiding Contents	
The Irrigation and Drainage module aims to enable students to understand the scientific and engineering foundations for managing irrigation and drainage water roved in agricultural lands, ensuring increased water use efficiency and imp :agricultural production. Its primary objectives include • Introducing students to the concepts of irrigation and drainage and their .importance in modern agriculture • Providing students with knowledge of irrigation methods (surface, .d their applicationssprinkler, drip) an • Clarifying the relationship among soil, water, and plants and its influence .on irrigation requirements • .Training students to calculate the water requirements of agricultural crops • gation and their effects irri-irrigation or under-Identifying problems of over .on plant growth • Introducing students to drainage systems and their importance in .improving soil properties • Enabling students to understand the causes of soil salinization and methods .for its remediation • asic skills in designing and operating irrigation Equipping students with b .and drainage networks • Promoting the concept of sustainable water management in the agricultural .sector	Module Objectives Module Aims
:the student will be able to By the end of the Irrigation and Drainage module • Understand the basic principles of irrigation and drainage and their .importance in agricultural production • Explain the relationship between soil, water, and plants and its impact on .irrigation efficiency • .equirements of crops using scientific principlesDetermine the water r • Distinguish among types of irrigation methods and the appropriate contexts .for each • Analyze various irrigation problems such as waterlogging and water	Module Learning Outcomes Module Learning Outcomes

• shortages and their effects on soil and plants • Understand the causes of soil salinization and methods for prevention and Unders .remediation • Familiarize with the fundamentals of designing and operating irrigation and .drainage networks • .Apply scientific concepts to manage agricultural water efficiently • efficiency of irrigation and drainage systems and propose Evaluate the .solutions for their improvement • Contribute to achieving sustainable management of water resources in .agriculture	
1. in agriculture The concept of irrigation and its importance 2. Sources of irrigation water and their characteristics 3. The relationship between soil, water, and plants 4. Plant water requirements and the factors affecting them 5. Irrigation methods: surface irrigation, sprinkler irrigation, drip irrigation 6. igation system efficiency and methods to improve itlrr 7. (irrigation, waterlogging-irrigation, under-Irrigation problems (over 8. Soil salinity and its impact on agricultural production 9. The concept of drainage (agricultural drainage) and its importance 10. (ainage systems (surface, subsurfaceTypes of dr 11. Design and maintenance of drainage networks 12. Water management in agricultural lands 13. Techniques to improve water use efficiency 14. Principles of sustainable management of water resources in agriculture 15. en irrigation and drainage in improving soil fertility. The relationship betwe The course also includes exercises on pronunciation aspects that help improve clarity and comprehension of speech in intercultural contexts, ." particularly what is known as the "lingua franca core	Indicative Contents Guiding Contents

Learning and Teaching Strategies Teaching and Learning Strategies	
1. Interactive lectures to explain the fundamental concepts in irrigation and .drainage 2. based learning (Problem Solving) to address irrigation and drainage -Problem .eldproblems in the fi 3. .Brainstorming to develop students' ideas on agricultural water management 4. .Case studies for analyzing real problems in irrigation and drainage projects 5. .Cooperative learning through working in small groups 6. .ation and drainage network projectsPractical training and field visits to irrig 7. .Use of visual aids (photos, diagrams, videos) to explain hydraulic systems 8. Classroom discussion and dialogue to enhance understanding and	Strategies

.information analysis 9. nd irrigation Training in practical calculations of water requirements a .efficiency 10. .Linking theory with field application in agricultural fields	
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Student Workload (SWL)

.The student's study load is calculated for 15 weeks

2	Structured SWL (h/w) .Regular student study load per week	33	Structured SWL (h/sem) Regular student study load during the .semester
1	Unstructured SWL (h/w) .Irregular student study load per week	17	Unstructured SWL (h/sem) Irregular student study load during the .semester
50			Total SWL (h/sem) Total student study load during the .semester

Module Evaluation

Module assessment

Related learning outcome	Due week	(Weight (marks	Time / Number		
LO #1, #7	3,6,9	10% (10)	2	Short quizzes	Formative assessment
LO #3, #4 and #6	10	10% (10)	2	Assignments	
		0 %	0	Projects / Laboratory	
LO #5	14	10% (10)	1	ysEssa	
LO #1 - #7	7	20% (10)	2hr	Midterm exam	Final assessment
All	16	50% (50)	2hr	Final exam	
		100% (100 Marks)	Total assessment		

Delivery Plan (Weekly Syllabus)

Weekly theoretical syllabus

Material Covered	
of irrigation and its importance in agriculture The concept	Week 1
Sources of irrigation water and their characteristics	Week 2
The relationship between soil, water, and plants	Week 3
Water requirements of agricultural crops	Week 4
their areas of application Surface irrigation methods and	Week 5
Sprinkler irrigation methods and their efficiency	Week 6
Drip irrigation methods and their advantages	Week 7
Irrigation problems and their effects on soil and plants	Week 8
Soil salinity: causes and remediation methods	Week 9
The concept of drainage (agricultural drainage) and its importance	Week 10
Types of surface drainage systems	Week 11
Subsurface drainage systems	Week 12
Design of primary irrigation networks	Week 13
management Efficient and sustainable irrigation water	Week 14
The relationship between irrigation and drainage in improving agricultural production	Week 15

Delivery Plan (Weekly Lab. Syllabus)

Weekly Syllabus for the Laboratory

	Material Covered
Week 1	quipment used in the fieldFamiliarization with irrigation tools and e
Week 2	Measuring soil moisture by simple and field methods
Week 3	Calculation of water requirements for agricultural crops
Week 4	Practical study of surface irrigation methods in the field
Week 5	nkler irrigation systemsPractical application of spri

Week 6	Practical application of drip irrigation systems
Week 7	Measuring the efficiency of different irrigation systems
Week 8	Diagnosing irrigation problems in agricultural fields
Week 9	Identifying field manifestations of soil salinity
Week 10	affected soils-Methods to improve salt
Week 11	Practical familiarization with surface drainage systems
Week 12	Practical familiarization with subsurface drainage systems
Week 13	Maintenance and cleaning of irrigation and drainage net
Week 14	Field visit to irrigation and drainage projects
Week 15	Training in irrigation water management in agricultural fields

Learning and Teaching Resources

Learning and teaching resources

Available in the Library?	Text	
Yes	ity textbooks specializing in irrigation, drainage, and Univers .agricultural hydrology .Scientific references in water, soil, and plant management Books on the design and operation of modern irrigation .(networks (surface, sprinkler, drip icultural drainage (drainage) and Books and systems on agr .salinity management Reports and publications of the Food and Agriculture .Organization (FAO) related to water management reviewed scientific journals in agricultural engineering -Peer .and soil science s and doctoral theses in irrigation and 'Research and master .land reclamation specialization Extension bulletins issued by ministries of agriculture .and research centers .Reliable agricultural and hydrological websites Field experience and practical visits to irrigation and	Required Texts

	.drainage projects	
		Recommended Texts
		Websites

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

Location 10

MODULE DESCRIPTION FORM

Module Description Form

Module Information		
Module Information		
Module Title	Basics of Horticulture	Module Delivery
Module Type	Basic	☒ Theory

Module Code	WOU02		☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
ECTS Credits	3			
SWL (hr/sem)	48			
Module Level		Semester of Delivery	1	
Administering Department	Field Crops	College	College of Agriculture	
Module Leader		e-mail		
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	Master's	
Module Tutor		e-mail		
Peer Reviewer Name	Dr. Nabil Rahim Lahmood	e-mail		
Scientific Committee Approval Date	11/6/2026	Version Number	1.0	

Relation with other Modules			
Relationship with Other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Learning and Teaching Strategies	
Teaching and Learning Strategies	
Strategies	.Interactive lectures .Discussion and scientific dialogue .Brainstorming .erative learningCoop .based learning-Problem .Agricultural case studies .Demonstrations and educational aids .Field visits to nurseries and horticultural fields Practical training on basic horticultural operations.

Student Workload (SWL)

ent's study load is calculated for 15 weeksThe stud			
Structured SWL (h/sem) Regular student study load during the .semester	45	Structured SWL (h/w) .Regular student study load per week	15
Unstructured SWL (h/sem) Irregular student study load during the .semester	5	Unstructured SWL (h/w) .Irregular student study load per week	10
Total SWL (h/sem) Total student study load during the .semester	75		

Module Evaluation					
Module assessment					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Tests	1	10% (10)	Continuous	1,2,3,4,5,6
	college -In assignments	15	10% (10)	Continuous	1,2,3,4,5,6
	Homework assignments	1	15% (15)	Continuous	1,2,3,4,5,6,7,8,9,10,11,12,13,14,
	Reports	1	5% (5)	Continuous	1,2,3,4,5,6
Summative assessment	m examMidter	2hr	10% (10)	14	1,2,3,4,5,6
	Final exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)	
Theoretical Part -Weekly Syllabus	
Material Covered	
.ce, and its branchesThe concept of horticulture, its importan	Week 1
.Classification of horticultural crops	Week 2
.Environmental factors affecting the growth of horticultural plants	Week 3

.Suitable soils for horticultural crops	Week 4
.Propagation of plants by seed	Week 5
.gation of horticultural plantsVegetative propa	Week 6
.Production of vegetable crops	Week 7
.Production of fruit trees	Week 8
.Production of ornamental plants	Week 9
.Establishment and management of nurseries	Week 10
.Irrigation and fertilization operations	Week 11
.Pruning and training operations	Week 12
.Control of pests and diseases	Week 13
.Harvesting and marketing of horticultural crops	Week 13
.General review and applications in the fundamentals of horticulture	Week 14

Delivery Plan (Weekly Lab. Syllabus)

y Syllabus for the LaboratoryWeekl

	Material Covered
Week 1	Familiarization with the laboratory, tools, and equipment used in horticultural .operations
Week 2	Familiarization with horticultural seeds and methods for testing their viability and .ion percentagegerminat
Week 3	.Preparation of growing media used in plant propagation
Week 4	.Conducting seed sowing in pots and seedling trays
Week 5	.Training on vegetative propagation by cuttings
Week 6	.Training in propagation by layering and grafting
Week 7	.Production of seedlings and their transfer to the permanent site
Week 8	.Familiarization with agricultural operations specific to vegetable crops

Week 9	.Familiarization with fruit trees and their morphological parts
Week 10	.ornamental plants and their classificationFamiliarization with o
Week 11	.Training in pruning and training operations for horticultural plants
Week 12	.Practical application of irrigation and fertilization
Week 13	.horticultural plantsFamiliarization with the major pests and diseases affecting h
Week 14	.harvest handling of horticultural crops-Training in harvesting and post
Week 15	Field visit to nurseries and horticultural fields and evaluation of the implemented .agricultural operations

Learning and Teaching Resources

Learning and teaching resources

	Text	Available in the Library?
Required Texts	.Specialized university textbooks in general horticulture References on the production of vegetables, fruits, and .ornamental plants .reviewed agricultural scientific journals-Peer Agricultural extension bulletins issued by the competent .authorities Scientific research and postgraduate theses in horticultural .sciences .Trusted scientific and agricultural websites .and fields and practical applications Educational nurseries Reports and publications of the Food and Agriculture .Organization	Yes
Recommended Texts	Scientific articles	No
Websites	No	

Grading Scheme

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Module 11

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