

MODULE DESCRIPTION FORM

Module Information			
Module Title	AGRICULTURE CAREER ETHICS		Module Delivery
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar
Module Code	ACE1020		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	1
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaïd fathiyy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. M.Sc.
Module Tutor	اميرة يونس حسين	e-mail	Amerayounis7@uomosul.edu.iq
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/9/2025	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- Teaching ethics and ethical concepts to the agricultural engineer. 2- Teaching the ethical rules of professional ethics and clarifying the ethics of agricultural engineering.
Module Learning Outcomes LOs	The student should be able to: LO#1: Know general concepts of morality and moral philosophies. LO#2: Learn the concept of occupational ethics and ethical rules in the agricultural engineering profession. LO#3: Respect the laws and regulations related to agricultural engineering projects. LO#4: Bear ethical responsibilities in the fields of the agricultural engineering profession.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> Ethical and professional ethics, which are moral philosophies, ethical rules in agricultural engineering. It includes distributing titles on agricultural professional ethics to students to give seminars on them. Total hrs = 63 = SSWL - (Exam hrs) = 63-3 = 60 hrs (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
Strategies	1. Interactive lecture, Brainstorming 2. Dialogue and discussion 3. Assigning reports 4. Quizzes 5. Presentation of examples of professional, ethical cases in the field of scientific specialization by students and received in discussion seminars.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem)	62	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	63	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	Seminar	1	10% (10)	All	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to professional ethics and its importance in agricultural engineering
Week 2	Basic ethical theories in the profession Integrity and scientific honesty in agricultural research
Week 3	The agricultural engineer's commitment to environmental responsibility
Week 4	Professional interaction with society and the public
Week 5	Positively dealing with conflicts of interest
Week 6	Ethics of agricultural experiments and research
Week 7	Mid-term Exam
Week 8	Ethics of agricultural experiments and research
Week 9	Confidentiality and data protection
Week 10	Compliance with laws and instructions in agricultural engineering
Week 11	Cooperation and teamwork in agricultural projects
Week 12	Combating professional corruption in agricultural engineering
Week 13	Continuous learning and self-development in an ethical context
Week 14	Assessing commitment to professional ethics: strategies and tools
Week 15	Ethics of innovation in agricultural engineering
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Seminar. Syllabus)	
	Material Covered
Week 1	Pesticide use and its impact on the health of farmers and consumers

Week 2	Crop price manipulation: the ethics of trade in agriculture
Week 3	Agricultural labour exploitation: workers' rights and working conditions
Week 4	The impact of industrial agriculture on biodiversity: is there ethics?
Week 5	Unsustainable agricultural practices: responsibility to future generations
Week 6	Marketing genetically modified products: transparency and ethics
Week 7	Water management in agriculture: the right to water and fair distribution
Week 8	Climate change and agriculture: ethical challenges for farmers
Week 9	Agriculture in protected areas: a balance between protection and production
Week 10	Agricultural research ethics: the limits of experiments on living organisms
Week 11	Unfair distribution of support allocated to farmers and its impact on small projects
Week 12	The impact of agriculture on local communities: benefits versus risks and ethical challenges
Week 13	Ethics in Cash Crop (traded as international trade) Farming and its impact on Food Security
Week 14	Modern technologies in agriculture: are we prepared to bear their ethical consequences
Week 15	Organic agriculture: ethical challenges in promotion and practice

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	N.A.	-
Recommended Texts	Professional Ethics اخلاقيات المهنة اخلاقيات المهنة	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.



رئيسة قسم الآداب والفنون
أ.د. هuda الفاييز



رئيسة الكلية العلمية
أ.د. هuda الفاييز



Higher Education and Scientific Research

MODULE DESCRIPTION

Module Information				
Module Title	ENGLISH LANGUAGE 1		Module Delivery	
Module Type	Basic learning activities		Theory ☐ Lecture ☐ Lab Tutorial Practical Seminar	
Module Code	UOM1021			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		1
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor		Module Leader's Qualification Ph.D. M.Sc.	
Module Tutor	N.A.		e-mail	N.A.
Peer Reviewer Name	N.A.		e-mail	N.A.
Scientific Committee Approval Date	1/9/2025		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- To going on studying the English language in special the scientific language. 2- Widening student mind about scientific and literature English vocabularies. 3- Helping the students to think and write in English the scientific reports.
Module Learning Outcomes LOs	The student should be able to: LO#1: Gets to know simple sentences, Present Simple, Past simple and Future. LO #2: Gets to know formation of negative sentences and questions in the present and past tense. LO#3: Expresses in writing the active and passive forms in writing scientific reports. LO#4: He chooses appropriate punctuation marks when writing scientific texts in his specialty.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> Enriching the student with knowledge related to the parts and types of speech, parsing marks and their tools, knowledge of punctuation tools, and choosing the appropriate style and verbs for preparing scientific reports in the specialty in a correct scientific manner. Total hrs = 32 = SSWL - (Exam hrs) = 32-2= 30 (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	6. Interactive lecture, Brainstorming 7. Dialogue and discussion 8. Assigning reports 9. Quizzes 10. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

Structured SWL (h/sem)	32	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	2

Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	20% (10)	2 and 13	LO#1 and LO#3
	Projects / Lab.	-	-	-	-
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	A Paragraph on agricultural engineering sciences
Week 2	A Paragraph on agricultural engineering sciences
Week 3	Present Simple: affirmative sentences
Week 4	Present Simple: 3rd person singular ('s)
Week 5	Present Simple: negation and yes/no question
Week 6	Present Simple: wh-questions
Week 7	Mid-term Exam

Week 8	Review the Present Simple
Week 9	Past Simple: affirmative sentences
Week 10	Past simple: irregular verbs inflections
Week 11	Past Simple: negation and yes/no question
Week 12	Past Simple: wh-questions
Week 13	Synonyms and Antonyms
Week 14	Reviewing the passage, Present and Past Tenses, and Synonyms + Antonyms
Week 15	Writing in the active and passive voice in scientific reports
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	New Headway Plus/Beginner part1	Yes
Recommended Texts	Rapid Review of English Grammar 2020–2021	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.



MODULE DESCRIPTION

Module Information			
Module Title	COMPUTER 1	Module Delivery	
Module Type	Basic learning activities	☐ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM1031		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1		
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboory Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboory@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	
		Ph.D. MSc.	
Module Tutor	م.نجلاء متي اسحق	e-mail	najla.matti@uomosul.edu.iq
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/9/2025	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	

Co-requisites module	None	Semester	
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Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. Introducing students to the basics of computers, including computer components, operating systems, and essential software, as well as providing. 2. Teaching students how to collect and analyze data using Excel or statistical analysis software, creating documents with word processors, and developing presentations. 3. Enhancing students' online research skills and how to use electronic resources for scientific research. 4. Utilizing computer tools to enhance communication and collaboration skills among students, such as using e-mail and online learning platforms.
Module Learning Outcomes	LO#1: Identify and explain the components of a computer and their basic functions. LO#2: Analyze agricultural data using Excel and present findings through well-organized documents and presentations. LO#3: Evaluate the credibility of online sources when conducting scientific research. LO#4: Students should be able to use computer tools to enhance communication with peers, such as e-mail and online learning platforms.
Indicative Contents	Indicative content includes the following. An introduction to the computer and its components, with basic operating systems and their interfaces, will be covered. [SSWL=9 hrs] Focus on the practical use of software for data analysis (Excel), presentations (PowerPoint), and basic troubleshooting techniques to resolve common computer issues. [SSWL=24 hrs] The semester also includes an introduction to the Internet, web browsers, networks, and the basics of e-mail, as well as methods for discovering computer errors and ways to fix them. [SSWL=9 hrs] Total hrs = 47 = SSWL - (Exam hrs) = 47 - 2 = 45 hr (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
Strategies	• Practical Sessions: Provide students with regular lab sessions where they can apply theoretical knowledge directly. Practical exercises such as creating documents, analyzing data using Excel, and troubleshooting common computer problems will enhance skill retention and understanding. • Project-Based Learning: Assign group projects where students must apply the tools learned (e.g., Excel, Word, PowerPoint) to solve real-world agricultural problems. For instance, they can analyze agricultural data and present their findings. This promotes collaboration, critical thinking, and problem-solving.

- **Blended Learning:** Combine in-person teaching with online resources and platforms. Use e-learning tools, such as video tutorials, quizzes, and discussion forums, to provide additional support outside class. Students can learn at their own pace while reinforcing what they learn in the classroom.
- **Discussion and Peer Learning:** Incorporate group discussions and peer review activities. For example, after a practical session, encourage students to present their solutions or projects to the class and give each other feedback. This fosters engagement, critical thinking, and communication skills.

Student Workload (SWL)

Structured SWL (h/sem)	47	Structured SWL (h/w)	3
Unstructured SWL (h/sem)	28	Unstructured SWL (h/w)	1.87
Total SWL (h/sem)	75		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	1,2, 3	LO #1
	Assignments	2	10% (10)	5 and 11	LO #1, #2
	Projects / Lab.	2	10% (10)	6 and 12	LO #1, #2
	Report	1	10% (10)	14	LO #3, #4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1, #2
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Introduction to Computer: Concepts of Hardware and Software with their components; Concept of Computing, Data, and Information; Applications of Information Electronics and Communication Technology (IECT); Connecting input-output devices and peripherals to CPU.
Week 2	Lab 2: Computer Components: Computer Portions, Hardware Parts, Memory Types, Basic CPU Components, Computer Ports, Personal Computer, Personal Computer (Features and Types).
Week 3	Lab 3: Operating System and Graphical User Interface GUI: Operating System, Basics of Common Operating Systems, The User Interface, Using Mouse Techniques; Use of Common icons, Status Bar, Using Menu and Menu-selection, Concept of Folders and Directories, Opening and closing of different Windows; Creating Short cuts.
Week 4	Lab 4: Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling: Spell check, language setting, and thesaurus.
Week 5	Lab 5: Editing Documents: Editing an agricultural project idea using Word, using all the program's commands and instructions, and with practical application.
Week 6	Lab 6: Getting Started with Excel: Formatting a Worksheet, Working with Formulas and Functions, Working with Charts.
Week 7	Midterm Exam
Week 8	Lab 8: Spread Sheet: Basics of Spreadsheet; Manipulation of cells, Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.
Week 9	Lab 9: Excel Program in Statistical Analysis: Collecting Agricultural Data, Organizing Data in Excel, Basic Functions in Statistical Analysis, Creating Graphs and Charts, How to Read Statistical Results, Understandably Presenting Results.
Week 10	Lab 10: Practical Example of Analyzing Agricultural Data Using Excel.
Week 11	Lab 11: Presentation Software: Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation/ handouts.
Week 12	Lab 12: Create a presentation of an agricultural project idea using PowerPoint, all the program's commands and instructions, and with practical application.
Week 13	Lab 13: Introduction to Internet and web browsers: Basic computer networks, LAN, WAN, Concept of Internet and its applications, connecting to the Internet, world wide web, web browsing software, search engines, understanding URL, Domain name, IP Address.
Week 14	Lab 14: Communication and E-mails: Basics of electronic mail, getting an e-mail account, sending and receiving e-mails, accessing sent e-mails, using e-mails, and document collaboration.

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 15	Lab 15: Computer Troubleshooting: Identifying and solving common hardware and software problems that computer users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues.

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Computer Basics and Office Applications, Ministry of Higher Education and Scientific Research, 2013.	Yes
Recommended Texts	N.A.	-
Websites	▪ https://www.dawliatraining.com/training-packages-single/1025 ▪ https://edu.gcfglobal.org/en/tr_ar-misc/what-is-a-computer-/1/ ▪ https://www.edraak.org/programs/course-v1:Edraak+ICDL1+2019SP/	

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

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



MODULE DESCRIPTION

Module Information				
Module Title	DEMOCRACY and HUMAN RIGHTS		Module Delivery	
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM1040			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		1
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firmasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor		Module Leader's Qualification Ph.D. M.Sc.	
Module Tutor	N.A.		e-mail	N.A.
Peer Reviewer Name	N.A.		e-mail	N.A.
Scientific Committee Approval Date	1/9/2025		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- Enabling the student to understand and comprehend what is related to human rights, their types, and rights in the heavenly religions. 2- Enabling the student to recognize the types of human rights and human rights according to the Iraqi Constitution in 2005.

	3- Enabling the student to recognize the types and types of governments. 4- Enabling the student to learn about democratic and dictatorial governments and the concept of freedom and the rights of others.
Module Learning Outcomes LOs	The student should be able to: LO#1: Understands everything related to human rights, his rights in divine religions, and the concept of democracy. LO#2: Familiar with the types of general human rights and human rights according to the Iraqi Constitution of 2005. LO#3: Bears the national responsibility to respect human rights, opinion, and the other opinions of the nation's partners. LO#4: Respects the freedoms and rights of others.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> Enriching the student with knowledge related to human rights and their types, and their relationship to peaceful coexistence with the nation's partners, and the concept of human rights and divine religions, as well as introducing the student to the concept of governments and their types, and making him familiar with the concept of individual freedom, democracy, and human rights in accordance with the Iraqi constitution. Total hrs = 32 = SSWL - (Exam hrs) = 32-2 = 30 hrs (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	11. Interactive lecture, Brainstorming 12. Dialogue and discussion 13. Assigning reports 14. Quizzes 15. Assigning group work to reveal leadership skills
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Student Workload (SWL)

Structured SWL (h/sem)	32	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)¹	2
Total SWL (h/sem)	50		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	20% (20)	2 and 13	LO#1 and LO#3
	Projects / Lab.	-	-	-	-
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	History of human rights
Week 2	Human rights in heavenly religions
Week 3	Forms of human rights
Week 4	New or modern human rights
Week 5	Human rights in international governmental organizations
Week 6	Human rights in non-governmental organizations, human rights in the Iraqi constitution in 2005
Week 7	Mid-term Exam
Week 8	Types of governments
Week 9	Democratic government
Week 10	Characteristics of democracy
Week 11	Pictures of democratic government
Week 12	Indirect democracy
Week 13	Types of ballots
Week 14	Procedures preliminary elections
Week 15	Types of election
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Human rights, written by: Hafez Alwan Hammadi Al-Dulaimi. 2010	Yes
Recommended Texts	1. Universal human rights between theory and practice, written by Jack Donnelly. 2. Human Rights, Children and Democracy, written by: Maher Saleh Allawi Al-Jubouri and others. 3. Human Rights and Public Freedoms, written by: Ramez Muhammad Ammar. 4. The Genesis of Human Rights, written by: Lynn Hunt, translated by: Fayqa Girgis Hanna. 5. The Philosophy of Human Rights, written by: Ansam Amer Al-Sudani. 6. The Concept of Contemporary Democracy, written by: Ali Khalifa Al Kuwari. 7. Democracy, written by Charles Tilly, translated by: Muhammad Fadel. 8. Rooted Democracy and the Problem of Implementation, written by: Muhammad Al-Ahmari. 9. Parliamentary Governments, written by: John Stuart Mill, translated by: Emile Al-Ghuri. 10. Electoral Systems, written by: a group of authors. 11. The Genesis of Human Rights, written by: Lynn Hunt, translated by: .Fayqa Girgis Hanna 12. .The Philosophy of Human Rights, written by: Ansam Amer Al-Sudani 13. Human Rights in the Western Religious Heritage and Islam, written by: Muhammad Jalaa Idris and Amal Muhammad Abd al-Rahman Rabie.	No

Websites	1- The United Nations. 2- Office of the High Commissioner, United Nations High Commissioner for Human Rights. 3- Amnesty International. 4- UNICEF. 5- International Committee of the Red Cross.
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-1

Grading Scheme				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent		90 - 100	Outstanding Performance
	B - Very Good		80 - 89	Above average with some errors
	C - Good		70 - 79	Sound work with notable errors
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Fail Group (0 – 49)	FX – Fail		(45-49)	More work required but credit awarded
	F – Fail		(0-44)	Considerable amount of work required

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



MODULE DESCRIPTION

Module Information			
Module Title	ENGINEERING DRAWING	Module Delivery	
Module Type	Basic learning activities	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	END1030		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	I		
Administering Department	AGME1986	Semester of Delivery	1
College	AGFO1964		
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboory Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omarallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	MSc.
Module Tutor	حسين عبد حمود	e-mail	Hussainali@uomosul.edu.iq
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/9/2025	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. To develop the Agricultural student's ability to imagine projections and their models. 2. Exercising hand movement in engineering drawing to complete quick sketches. 3. This course deals with the theory of Orthographic Projection and the basic subject of isometric drawing. 4. To teach students engineering drawings using the AutoCAD program, which includes both theoretical lectures and labs.
Module Learning Outcomes	LO#1: Absorbing all the engineering characteristics of an object or a product in a clear manner. LO#2: Know the tools used in engineering drawing and how to use them correctly, LO#3: Understand and apply the basics of engineering processes. LO#4: Conclude projections and isometrics for each geometric figure and recognize its dimensions.
Indicative Contents	Indicative content includes the following. Part A: Engineering Drawing Basics and Tools • Introduction and Definition of Engineering Drawing • Engineering Drawing Tools and Their Uses • Explanation of Sheet Dimensions, Information Table, and Letter Writing. • Types of Lines and Basic Geometric Operations: Introduction to different types of lines (continuous, dashed, center lines) and their specific uses in drawings. Performing basic geometric operations such as measuring, dividing, and marking. • Arcs and Tangents: Defining and drawing arcs and tangents in engineering drawings, including field applications. [20 hrs.] • Classwork: Practical Applications of Previous Topics Hands-on practice applying learned techniques (lines, arcs, sheet setup) [4 hrs.] Part B: Engineering Projections and Operations: • Engineering Projections: Understanding projection techniques, especially orthographic projections. Learning how to project an object's views from different angles. • Mid-term Exam: Assessment covering the topics learned in Part A and initial projection skills. • Deducing the Third Projection Based on Two Projections: Skill development in visualizing and drawing the third projection when given two views of an object. [12 hrs.] • Classwork: Practical Applications of Deducing the Third Projection: Applying concepts learned in projection drawing. [4 hrs.] Part C: Advanced Drawing Techniques and CAD Software • Drawing Engineering Perspective (Isometric): Introduction to isometric drawing techniques. Drawing objects in isometric view for accurate 3D representation. • Review of Isometric Engineering Perspective: Revisiting the principles of isometric drawing and its application in technical drawings. Understanding the connection between isometric drawings and orthographic projections. [8 hrs.]

	• Introduction to Computer-Aided Drawing (CAD): Overview of computer-aided drawing, emphasizing its importance in modern engineering. Introduction to software tools like AutoCAD and SolidWorks, including their hardware components and versions. • AutoCAD Interface and Main Commands: Learning the basic interface of AutoCAD, including the drawing and modification toolbar. Explanation of key commands and their uses. • Drawing Simple Geometric Shapes Using AutoCAD: Hands-on practice with AutoCAD to draw basic geometric shapes. [12 hrs] Total hrs = 63 = SSWL - (Exam hrs) = 63 - 3 = 60 hr (Time table hrs x 15 weeks)
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Learning and Teaching Strategies			
Strategies	1. Lecture-based Teaching: Explaining concepts and demonstrating tools, techniques, and software in real time allows students to observe the process before applying it.		
	2. Hands-on Practice: Lab Sessions: Providing practical sessions where students use drawing tools and software like AutoCAD or SolidWorks to develop their skills. Guided Exercises: Offering step-by-step instructions to complete tasks such as drawing isometric views or projections.		
	3. Interactive Class Discussions: Question and Answer Sessions: Actively engage students in discussions where they can ask questions and clarify doubts about topics like projection techniques or CAD tools.		
	4. Assessment and Evaluation: Project-based Assessments: Assigning projects requiring students to apply the concepts they've learned, like creating detailed engineering drawings using manual and software-based techniques.		
Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	87	Unstructured SWL (h/w)	5.8
Total SWL (h/sem)	150		

Module Evaluation					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes	1	10% (10)	7	LO#1,Lo#2Lo#3,LO#4

Formative assessment	Assignments-class	5	10% (10)	3, 5, 8, 10, 12	LO#1,Lo#2Lo#3,LO#4
	Assignments-homework	5	10% (10)	2, 4, 6, 9, 13	LO#1,Lo#2Lo#3,LO#4
	Reports	1	10%	14	LO#1,Lo#2Lo#3,LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1,Lo#2Lo#3,LO#4
	Final Exam	3hr	50% (50)	16	LO#1,Lo#2Lo#3,LO#4
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly, Syllabus)

	Material Covered
Week 1	Introduction and definition of engineering drawing
Week 2	Engineering drawing tools and their uses, knowing types of pens used, Drawing board layout.
Week 3	Explanation of sheet dimensions, information table, and letter writing
Week 4	Types of lines, their applications, and basic geometric operations
Week 5	Arcs and tangents
Week 6	Classwork: Practical applications of previous topics
Week 7	Engineering projections
Week 8	Mid-term Exam
Week 9	Deducing the third projection based on the other two

Delivery Plan (Weekly, Syllabus)	
	Material Covered
Week 10	Classwork: Practical applications of deducing the third projection
Week 11	Drawing engineering perspective (isometric)
Week 12	Review of isometric engineering perspective and its relation to deducing the third projection
Week 13	Introduction to the importance of computer-aided drawing and the types of software used for engineering drawing, such as AutoCAD and SolidWorks, including their components and versions.
Week 14	Introduction to the AutoCAD interface and main commands: (Drawing toolbar and its uses, modification toolbar and its uses).
Week 15	Drawing simple geometric shapes using AutoCAD.
Week 16	Preparatory week before the Final Exam

Delivery Plan (Weekly Practical Syllabus)	
	Material Covered

Week 1	Familiarization with different drawing tools, including pens, and setting up the drawing board layout.
Week 2	Practice drawing sheets according to standard dimensions, setting up an information table, and writing technical letters.
Week 3	Identify different line types and execute basic geometric operations (e.g., drawing straight lines, circles).
Week 4	Practice drawing arcs and tangents using drawing tools .
Week 5	Consolidate skills by applying learned techniques (lines, arcs, tangents) in a project or assignment.
Week 6	Start drawing orthographic projections of simple objects, projecting different views.
Week 7	Assessment based on skills acquired in previous weeks, focusing on projections, lines, and geometric operations.
Week 8	Visualize and draw the third projection based on two given views.
Week 9	Work on exercises that reinforce the ability to deduce the third projection, applying this to different objects.
Week 10	Learn to draw isometric projections, emphasizing proper axis alignment and scaling.
Week 11	Review and reinforce isometric drawing techniques and their connection to orthographic projections.
Week 12	Introduction to AutoCAD and SolidWorks; learning the basic interface, including drawing and modification toolbars.
Week 13	Practice using the AutoCAD interface, focusing on drawing commands (e.g., lines, circles) and modification commands (e.g., trim, extend).

Week 14	Create simple geometric drawings using AutoCAD, including 2D shapes like squares, rectangles, and circles.
Week 15	Work on exercises that reinforce the ability to Create simple geometric drawings using AutoCAD.

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	الرسم الهندسي لطلبة كليات الزراعة، د. ناطق صبري حسن، 1990	Yes
Recommended Texts	Textbook of Engineering Drawing k. Venkata Reddy, 2008	-
Websites	-	

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

مدرسة

رئيس قسم الأرشك الزراعي ولعل القابلية
أ.د. وسليم بنو عزيز



مدرسة

رئيس اللجنة العلمية
أ.د. أحمد حواء طالب



MODULE DESCRIPTION

Module Information				
Module Title	Mathematics		Module Delivery	
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	MAT1010			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	Semester of Delivery		1
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaïd fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor		Module Leader's Qualification Ph.D. MSc.	
Module Tutor	ا.م. امنة عبد الاله		e-mail	Amina80@uomosul.edu.iq
Peer Reviewer Name	اميرة يونس حسين		e-mail	Amerayonis7@uomosul.edu.iq
Scientific Committee Approval Date	1/9/2025		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	- To enable students to acquire proficiency in performing differential calculus operations. - In the field of calculus, the fundamental methodologies used to examine and describe functions are limits, derivatives, and integrals. - Students will use these tools to address application problems across a wide range of disciplines, including physics, biology, business, and economics.
Module Learning Outcomes	LO#1: The student uses understanding and of the basic concepts of engineering mathematics. LO#2: The student can develop his mental abilities when solving exercises. LO#3: The student can make connections with information mental abilities when solving exercises to reach a solution and benefit from it in other transactions.
Indicative Contents	Indicative content includes the following. Theory and Tutorial: The focus will be on logarithms - the natural logarithm [SSWL=4 hrs], and applications and solutions will be taken for problems in the exponential function - the trigonometric function - trigonometric facts - complex angles [SSWL=4 hrs], and then the focus will be on differential calculus - derivative laws - derivatives from higher orders such as the equation of the straight line (tangent and perpendicular) and the derivative of trigonometric functions and the derivative of exponential functions - derivatives of logarithmic functions with applications on the derivative (velocity and acceleration) and applications on the derivative (points of inflection) and in hours [SSWL=24 hrs], then moving on to integration calculations - integration laws - definite integration and focusing on integration methods - integration by algebraic substitution - integration by parts and integration methods - integration by partial fractions and in hours [SSWL=12 hrs], then the focus will be on important applied aspects such as finding the area under the curve - the approximate method - by integration calculations and finding the area between two curves With applications of volume of a rotating body and numerical integration Trapezoidal rule and number of hours [SSWL=16 hrs]. .[SSWL=16 hrs] Trapezoidal rule Total hrs = 63 = SSWL - (Exam hrs) = 63 - 3 = 60 hr (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
Strategies	Quizzes, Homework, Discussion and solving exercises within the lecture, student interaction

Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	112	Unstructured SWL (h/w)	2

		1	
Total SWL (h/sem)	175		

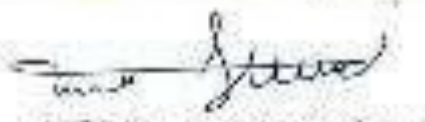
Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	6 and 9	LO #1, #2
	Assignments	2	10% (10)	3 and 10	All
	Tutorial	1	10% (10)	Continuous	All
	Report	1	10% (10)	12	All
Summative assessment	Midterm Exam	2hr	10% (10)	7	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Theory Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Logarithms and natural logarithms
Week 2	The exponential function - the trigonometric function - trigonometric facts compound angles
Week 3	Differential Calculus - Laws of Derivatives - Higher Order Derivatives
Week 4	Equation of a straight line (tangent and normal)
Week 5	Derivative of trigonometric functions
Week 6	Derivative of exponential functions - derivative of logarithmic functions
Week 7	Midterm exam
Week 8	Applications on the derivative (speed and acceleration)
Week 9	Applications to the derivative (inflection points)
Week 10	Introduction to integration calculations - laws of integration - definite integration
Week 11	Integration methods - integration by algebraic substitution - integration by Part.
Week 12	Integration methods - integration with partial fractions
Week 13	Finding the area under the curve - the approximate method - using integration Calculations
Week 14	Find the area under the curve
Week 15	Volume of solid revolution and Numerical integrationTrapezoidal rule
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Tutorial Syllabus)	
	Material Covered
Week 1	Solving exercises and mathematical applications in logarithms and natural logarithms
Week 2	Solving exercises and mathematical applications in the exponential function - the trigonometric function - trigonometric facts compound angles
Week 3	Solving exercises and mathematical applications in differential Calculus - Laws of Derivatives - Higher Order Derivatives
Week 4	Solving exercises and mathematical applications in equation of a straight line (tangent and normal)
Week 5	Solving exercises and mathematical applications in derivative of trigonometric functions
Week 6	Solving exercises and mathematical applications in derivative of exponential functions - derivative of logarithmic functions
Week 7	Midterm exam
Week 8	Solving exercises and mathematical applications in applications on the derivative (speed and acceleration)
Week 9	Solving exercises and mathematical applications in applications to the derivative (inflection points)
Week 10	Introduction to integration calculations - laws of integration - definite integration
Week 11	Solving exercises and mathematical applications in integration methods - integration by algebraic substitution - integration by Part.
Week 12	Solving exercises and mathematical applications in integration methods - integration with partial fractions
Week 13	Solving exercises and mathematical applications in finding the area under the curve - the approximate method - using integration Calculations
Week 14	Solving exercises and mathematical applications in find the area under the curve
Week 15	Solving exercises and mathematical applications in volume of solid revolution and Numerical integrationTrapezoidal rule
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Mathematics for Machine Learning author M. P. Deisenroth, A. A. Faisal and C. S. Ong	No
Recommended Texts	Mathematical Handbook of Formulas and Table 1300 Math Formulas	No
Websites	https://mathblog.com/mathematics-books/	

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.				


 رئيس قسم الآلة الحاسبة ولغة التفاضل
 أ.د. وسام جعفر عزاير




 رئيس اللجنة العلمية
 أ.د. أحمد حواد طالب

MODULE DESCRIPTION

Module Information				
Module Title	AGRICULTURAL ENGINEERING TECHNIQUES TRANSFER		Module Delivery	
Module Type	Basic learning activity		Theory ☐ Lecture ☐ Lab Tutorial Practical Seminar	
Module Code	AET1040			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	1	Semester of Delivery		1
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGE1979, AETT1979, AGME1986	College	AGFO1964	
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq	
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification		Ph.D. MSc.
Module Tutor	ا.م.د. أسماء زهير يونس	e-mail	Asmaa-alhafidh@uomosul.edu.iq	
Peer Reviewer Name	م.م. علي طارق	e-mail	e-mali_tariq@uomosul.edu.iq	
Scientific Committee Approval Date	1/9/2025	Version Number	1.0	

Relation with other Modules

Learning and Teaching Strategies			
Strategies	16. Interactive lecture, Brainstorming 17. Dialogue and discussion 18. Assigning reports 19. Quizzes 20. Show examples for writing scientific reports in the correct formats.		
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1- Developing farm management among rural individuals 2- Developing a sense of responsibility towards the family and the rural community 3- Promoting positive attitudes of rural people towards agriculture, love of work, and use of modern technologies 4- Improving the marketing aspects of rural producers using modern technologies.
Module Learning Outcomes LOs	The student should be able to: LO#1: Know the general concepts of transferring agricultural engineering technologies. LO#2: Determines appropriate means to mobilize farmers in their love of work, development, and selection of agricultural engineering technologies. LO#3: Suggest appropriate technologies for agricultural engineering projects. LO#4: Bear ethical responsibilities in the areas of transferring agricultural engineering technologies.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> Developing the correct management skills to transfer and adopt agricultural technologies in the precise specialty and identifying appropriate means to guide the rural community to adopt modern and specialized technologies in the field of agricultural engineering, as well as identifying the types of technologies and how to employ them to develop work in the field of agricultural engineering sciences and methods of transferring them to society to reach high production and quality. <u>Practical application</u> The most important modern technologies in the field of agricultural engineering will be addressed, the most important reasons for their lack of spread will be discussed, and solutions will be put forward for adopting these technologies. Total hrs = 63 = SSWL - (Exam hrs) = 63-3= 60 (Time table hrs x 15 weeks)

Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	Projects/ Practical	3	10% (10)	4, 8 and 12	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to agricultural extension and technology transfer
Week 2	Elements of technology transfer and adoption process
Week 3	Factors that determine adoption rates and adopter categories
Week 4	Opinion leaders and agents of change
Week 5	Analyze farmers' needs
Week 6	Guidance methods (training and education methods)

Week 7	Mid-term Exam
Week 8	Transfer of agricultural technologies: concept and methods
Week 9	Challenges facing the transfer of agricultural technologies
Week 10	Using communication and media in agricultural extension
Week 11	Innovating and adapting to modern agricultural techniques
Week 12	Evaluation and follow-up of extension and technology transfer programs
Week 13	Cooperation between agricultural extension workers and the local community
Week 14	Applications of smart technologies in agricultural extension
Week 15	Tools for measuring effectiveness in technology transfer and extension
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Practical Syllabus)

Reviewing modern technology and discussing the most important means of transferring and adopting it by farmers, as well as the obstacles and treatments that ensure adoption:

	Material Covered
Week 1	Vertical Farming: A technique that uses vertical spaces to grow crops, increasing productivity and reducing land use.
Week 2	Smart Irrigation: Advanced irrigation systems that rely on sensors to monitor soil moisture and distribute water efficiently.
Week 3	Precision Agriculture: The use of technology to analyze agricultural data and improve crop management.
Week 4	Greenhouses: Creating protected environments to enhance crop growth and shield them from harsh weather conditions.

Week 5	Hydroponics: Growing plants in a water solution instead of soil, which reduces water use.
Week 6	Genetic Engineering: The use of genetic engineering to develop disease-resistant and drought-tolerant crops.
Week 7	Mobile Applications: Tools that help farmers manage their farms, such as tracking crops and weather.
Week 8	Agricultural Robots: The use of robots to perform tasks such as planting and harvesting.
Week 9	Remote Sensing Technology: Used to monitor crop health and track changes in the agricultural environment.
Week 10	Biological Control: The use of living organisms to control pests and diseases instead of chemical pesticides.
Week 11	Artificial Intelligence (AI): The application of AI technologies to analyze agricultural data and improve production.
Week 12	Nanotechnology: The use of nanomaterials to improve soil quality and enhance fertilizer effectiveness.
Week 13	Geographic Information Systems (GIS): Used to analyze geographic data and improve agricultural land planning.
Week 14	Organic Farming: Agricultural techniques that rely on the use of natural materials instead of chemicals.
Week 15	Drones: Used for monitoring crops, collecting data, and spraying pesticides.

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	N.A.	-
Recommended Texts	- Al-Tanoubi, Muhammad Muhammad Omar (d) (1998), Agricultural Guidance Reference, Arab Renaissance House for Printing and Publishing, Beirut. - Ghadeeb, Ali Ahmed. The size and importance of the problems of transferring agricultural technologies from	Yes

	the point of view of agricultural employees and farmers of irrigated areas in Nineveh Governorate. Doctoral thesis, College of Agriculture and Forestry - University of Mosul, 2006 - Al-Jubouri, Khattab Abdullah Muhammad (2006), The adoption rate of yellow maize farmers for modern agricultural technologies and its relationship to some variables in the Hawija District in Kirkuk Governorate, Master's thesis, College of Agriculture and Forestry, University of Mosul	
Websites		

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

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رئيس قسم الارشاد المدرسي وثالث الثقافات
أ.م.د. وسام بهو عزير

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رئيس اللجنة العلمية
أ.م.د. محمد هادي طه



MODULE DESCRIPTION FORM

Module Information				
Module Title	AGRICULTURAL STATISTICS		Module Delivery	
Module Type	Core learning activity		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	AGS1060			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	1	Semester of Delivery		2
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firmaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor		Module Leader's Qualification	Ph.D. MSc.
Module Tutor	م.محمد احمد محل		e-mail	ahmedmhmd424@uomosul.edu.iq
Peer Reviewer Name	م.سماح طلال سلطان		e-mail	samah.talal@uomosul.edu.iq
Scientific Committee Approval Date	1/2/2026		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

Module Objectives	1– Knows statistics and its types, and differentiates between descriptive statistics and inferential or inferential statistics 2– Explains what descriptive variables are, and recognizes the difference between a sample and a population 3– Organizes and draws a frequency distribution table and identifies its parts 4– Organizes a relative frequency distribution table and ascending and descending summation 5– Finds the arithmetic mean – and recognizes the properties of the arithmetic mean 6– Works on how to find the range, mean deviation, variance, and standard deviation
Module Learning Outcomes	LO#1: Is able to compile and classify data, and present it with tables and graphics LO#2: Is able to calculate descriptive statistics of numerical data. LO#3: Can build hypothesis and test the hypothesis, and can make a statistical deduction. LO#4: Can build relation between the data using statistics and make interpretations on them in order to make decisions.
Indicative Contents	Enriching the student with knowledge regarding the conduct and benefit of the agricultural statistical process, and learning how to measure the measurement of centering, mediation and correlation and how to employ them in the field of

	agricultural engineering sciences and techniques for implementing integration correctly to reach quantity and quality Total hrs = 125 = SSWL - (Exam hrs) = 125-3= 122 (Time table hrs x 15 weeks)
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Learning and Teaching Strategies

Strategies	21. Interactive lecture, Brainstorming 22. Dialogue and discussion 23. Assigning reports 24. Quizzes 25. Show examples for writing scientific reports in the correct formats.
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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	Quizzes	2	10% (10)	5 and 10	LO#2
	Collage Assignments	2	10% (10)	2 and 12	LO#1, LO#2 and LO#3
	Home Assignments	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO#3

Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to the nature of statistics and the most important sections of statistics - the nature of data and statistical symbols
Week 2	The nature of statistical data - the difference between quantitative and descriptive variables, with examples of each type
Week 3	The difference between society and sample with mathematical examples
Week 4	Tabular and Graphing - Frequency Distribution Table - How to Create Classes and Find Class Length
Week 5	Clustered Distributions - Descending Cumulative Frequency Distribution Table - Frequency Curve - Graph of Cumulative Frequency Distribution Table
Week 6	Measures of mediation and centering - arithmetic mean - geometric mean
Week 7	Measures of centering and centering - harmonic mean - squared mean - median - mode
Week 8	Measures of dispersion or variation - range - mean deviation - variance and standard deviation
Week 9	Measures of dispersion or variation - the most important properties of variation or standard deviation - standard error - standard score
Week 10	Principles of probability theory - factorial - permutations - combinations - random experiment
Week 11	Discrete Probability Distributions - Binomial Distribution - Properties of Binomial Distribution
Week 12	Hypothesis Testing - Statistical Hypothesis - Null Hypothesis - Alternative Hypothesis
Week 13	Types of Error - General Steps in Hypothesis Testing
Week 14	T-test - Z-test
Week 15	Simple Correlation and Regression - Correlation Coefficient

Week 16	Preparatory week before the final Exam
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Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	The natural of statistical data
Week 2	The natural of statistical data
Week 3	Statistical symbol
Week 4	Graphical represent and display of data
Week 5	Graphical represent and display of data
Week 6	Measures of mediation and centering
Week 7	Measures of mediation and centering
Week 8	Measure of dispersion or different
Week 9	Measure of dispersion or different
Week 10	Midterm exam
Week 11	Probability theory
Week 12	Statistical test
Week 13	Statistical test
Week 14	Correlation coefficient data analysis
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

	Text	Available in the Library?
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Required Texts	introduction to Statistics - Principles of Statistics	Yes
Recommended Texts	Statistics and Statistical Methods Book	No
Websites	https://www.udemy.com/course/bmwqjwxb/?srsltid=AfmBOooesbV6jEmBd_tAQSa288D_QY0Hc1yK1i3seCLaNtYAT4ckpyn	

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.				

م. هادي
رئيس قسم الارشاد الزراعي ولعل التكاثر

أ. هادي وسام علي عزير



م. هادي
رئيس اللجنة العليا

أ. هادي وسام علي عزير



MODULE DESCRIPTION FORM

Module Information					
Module Title	AGRICULTURAL MARKETING TECHNIQUES			Module Delivery	
Module Type	Core learning activity			Theory Lecture Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	AMT1100				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		Semester of Delivery		
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGE1979, AETT1979, AGME1986		College	AGFO1964	
Module Leader	zwaïd fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhîm Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz massa Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firmasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq	
Module Leader's Acad. Title		Professor Assistant Professor		Module Leader's Qualification	
				Ph.D. MSc.	
Module Tutor	N.A.			e-mail	N.A.
Peer Reviewer Name		N.A.		e-mail	N.A.
Scientific Committee Approval Date		1/2/2026		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. The student gains a basic understanding of the food marketing system in the country. 2. The student describes the agricultural marketing chain. 3. The student identifies various economic principles and how they relate to agricultural marketing. 4. The student discusses consumer demand and the impact of marketing on consumer demand. 5. The student discusses specialty products and value-added products. 6. The student understands the importance of agricultural cooperatives. 7. The student describes the structure of agricultural marketing. 8. The student develops a marketing plan for an agricultural product
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Module Learning Outcomes	The student should be able to: LO#1: Explain the basic marketing functions of buying, selling, transportation, storage, financing, standardization, pricing, and risk bearing. LO#2: Apply economic principles to the marketing of agricultural products. LO#3: Identify alternatives in the marketing of agricultural commodities/products. LO#4: Study the structure of agricultural markets.
Indicative Contents	Indicative content includes the following. <u>Part A - Circuit Theory</u> Developing the correct management skills for agricultural marketing in the precise specialization and determining the appropriate means for marketing agricultural products in the fastest time, highest marketing efficiency and lowest costs, and working to transport agricultural commodities through good and fast transportation methods to ensure transportation in the fastest times because agricultural crops are susceptible to rapid spoilage if they are not transported and stored in storage methods. Various types, and work on packing agricultural products in glass, cardboard, plastic or wooden boxes. The most important modern means of shopping will be discussed, such as electronic marketing via the Internet. Students will also be taught how to shop practically by visiting wholesale marketing places and teaching students how a merchant or broker works in shopping. Total hrs = 32 = SSWL - (Exam hrs) = 32 - 2 = 30 hr (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	26. Interactive lecture, Brainstorming 27. Dialogue and discussion 28. Assigning reports 29. Quizzes 30. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

Structured SWL (h/sem)	32	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	93	Unstructured SWL (h/w)	6
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% (15)	4,6,9	LO#2, LO#4
	Home Assignments	2	10% (10)	2 and 12	LO#1, LO#4
	Collage Assignments	1	5% (5)	10 and 11	LO#3
	Report	1	10% (10)	13	LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introductions and Course Overview; Types of Markets, Role of Agriculture Marketing in economic development.
Week 2	Agricultural Marketing system, Marketing system productivity.
Week 3	Analysis of Agricultural Marketing system and approaches.
Week 4	Market organizations.
Week 5	Marketing tools.
Week 6	Market Efficiency and Margins and costs.
Week 7	Midterm Exam.
Week 8	Agricultural Marketing in Iraq.
Week 9	Agricultural Marketing problems and solutions.
Week 10	Role of Private and public sector in agricultural marketing.
Week 11	Government Marketing services, Agricultural Marketing information system.

Week 12	Agricultural Extension services, Marketing legislation, Agricultural prices, Agricultural price policy in Iraq, Agricultural wholesale markets.
Week 13	Development and Characteristics of Wholesales Markets, Commodity Marketing in Iraq.
Week 14	International Agricultural Marketing.
Week 15	Methods of exporting, Export process, WTO and its implementation in Iraq.
Week 16	Preparing the student for the final exam.

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Principles of Agricultural Marketing, Abu Saeed Al-Duwaihji, Al-Hamid Publishing House, 2001, Amman.	Yes
Recommended Texts	— Ali Faleh Al-Zaib, “Marketing Management - A Strategic Applied Perspective,” Dar Al-Yazouri Scientific, 2019. - Ali Faleh Al-Zouaib, “Marketing Communications: An Applied Methodological Approach,” 9th Edition, Dar Al-Masiriya for Publishing and Distribution, Amman-Jordan, 2191 - Issa Hammoud Al-Hassan, “Commercial Promotion of Goods and Services,” 9th edition, Zahran Publishing and Distribution House, Oman, .2191 - Ghassan Qasim Daoud Al-Almi, “Marketing Management New Ideas and Directions,” 9th edition, Safaa Publishing House. Distribution, Amman	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.				



MODULE DESCRIPTION FORM

Module Information			
Module Title	SUSTANIBLE DEVELOPMENT		Module Delivery
Module Type	Core learning activity		Theory Lecture Lab Tutorial Practical Seminar
Module Code	SUD1090		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	2
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1963, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. MSc.
Module Tutor	وسام ياقو عزيز	الايميل	wisam_yako@uomosul.edu.iq
Peer Reviewer Name	م.محمد احمد محل م.ريان رياض كاظم م.م.علي محمد جاسم	الايميل	ahmedmhmd424@uomosul.edu.iq rayan.rayadh@uomosul.edu.iq ali.m.j@uomosul.edu.iq
Scientific Committee Approval Date	1/2/2026	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. Understand the concept of sustainable development and its various dimensions. 2. Analyze the impact of environmental and social changes on achieving sustainability. 3. Study the role of government policies and innovation in supporting sustainable development. 4. Raise awareness of the importance of achieving social justice within the goals of sustainability.
Module Learning Outcomes	LO#1: How sustainability considerations can actually be embedded within an individual's and community's day to day activities and decision-making processes. LO#2: How existing sustainable development tools and methods can be adjusted/fine-tuned accordingly, and how to design sustainability performance metric to assess the impact on community's sustainable development. LO#3: How to design feedback systems that can readjust the pathways of processes and procedures to ensure success in implementing sustainable development initiatives. LO#4: How to empower communities set sustainability targets using appropriate metrics.
Indicative Contents	The theoretical and cognitive foundation of the concept of sustainable development will be developed and an experiential understanding of emerging global challenges for sustainable environmental and community governance systems will be gained through theoretical lectures in the fifteen weeks. By focusing on seminars related to sustainable development and simulating successful country experiences, the capacity of communities and students will be enhanced and their research role and development in establishing the necessary information links and feedback loops within the system will be raised to allow system actors to have a sound understanding of developing sustainable solutions. This will enable visualization of the different factors that affect sustainability and proposing an action plan for building sustainable communities. Total hrs = 62 = SSWL - (Exam hrs) = 62-2= 60 (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	31. Interactive lecture, Brainstorming 32. Dialogue and discussion 33. Assigning reports 34. Quizzes 35. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

Structured SWL (h/sem)		62	Structured SWL (h/w)		4
Unstructured SWL (h/sem)		63	Unstructured SWL (h/w)		4
Total SWL (h/sem)		125			
Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	3, 9 ,11	LO#1, LO#2, LO#3 and LO#4
	Collage Assignments	2	10% (10)	2 and 12	LO#1 and LO#3
	Projects	1	10% (10)	Continuous	All
	Report	1	5% (5)	14	LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Theory Syllabus)	
	Material Covered
Week 1	Introduction to Sustainable Development
Week 2	Economic, Social, and Environmental Dimensions of Sustainable Development
Week 3	History and Evolution of the Concept of Sustainable Development
Week 4	(Sustainable Development Goals (SDGs
Week 5	Sustainability in Natural Resource Management
Week 6	Climate Change and Its Impact on Sustainable Development

Week 7	Midterm Exam
Week 8	The Role of Education and Awareness in Achieving Sustainable Development
Week 9	Renewable Energy and Sustainability
Week 10	Sustainability in the Agricultural and Food Sector
Week 11	Government Policies and Their Role in Achieving Sustainable Development
Week 12	Innovation and Technology in Supporting Sustainability/ Artificial Intelligence Applications to Support Sustainability
Week 13	Social Justice and Equality in Sustainable Development
Week 14	Global Challenges Facing Sustainable Development
Week 15	The Future of Sustainable Development
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Seminars Syllabus)

	Material Covered
Week 1	Analysis of environmental challenges and opportunities in sustainable development.
Week 2	Analyzing the role of technology in supporting sustainability.
Week 3	Workshop on sustainability applications in local projects.
Week 4	Netherlands: Circular farming in the dairy sector, reusing animal waste for energy and bioplastics, using bioreactor technology integrated with IoT sensors
Week 5	Smart Pastures project in Mongolia, rotational grazing systems based on satellite monitoring, to restore 15% of degraded pastures annually

Week 6	Intensive Rice Project in Madagascar, implementing SRI (System of Rice Intensification) to increase production by 50% while saving water in a geography: highland areas in Antananarivo
Week 7	Smart Sustainable Farms in Ethiopia, integrating conservation agriculture with drought early warning systems: to increase crop resilience by 40% in Tigray regions.
Week 8	Brazil: Low Carbon Agriculture Model (ABC Program), reducing methane emissions by 38% through integrated livestock waste management
Week 9	China: Loess Plateau Rehabilitation, largest ecological restoration project (35,000 km²), using terraced terraces + water harvesting + selective afforestation.
Week 10	Jordan: "Water Rationing" project, micro-drip irrigation technology with big data analysis, by reducing water consumption by 70% in vegetable cultivation.
Week 11	Zambia: Conservation agriculture with FAO, zero tillage + permanent mulch + crop rotation, to increase maize production by 120% in 5 years
Week 12	"Palm Oasis" project in Morocco, combating desertification through solar drip irrigation systems.
Week 13	African Drylands Program (Senegal), cultivation of salt-resistant sorghum with fog harvesting, to reduce rural youth migration by 55%
Week 14	"Integrated Farming" project in the Niger Delta, fish farming with rice cultivation in the same water body, to increase income by 300% while improving biological fertility
Week 15	Project presentations and discussions on feasibility and conclusions. •

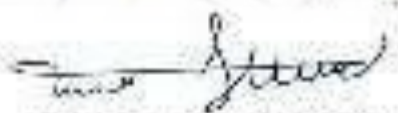
Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Omar bin Akhdar Khalfawi "Sustainable Development" عمر بن اخضر خلفاوي "التنمية المستدامة"	No
Recommended Texts	Abdullah bin Abdulrahman Al-Baridi "Sustainable Development: An Integrated Approach to Sustainability Concepts and Applications" عبدالله بن عبد الرحمن البريدي "التنمية المستدامة : مدخل تكاملي لمفاهيم الاستدامة وتطبيقاتها"	
Websites		

Grading Scheme

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

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


 رئيس قسم الدراسات العليا والبحوث
 أ.م.د. وسام جعفر عزايزة




 رئيس اللجنة العليا
 أ.م.د. أحمد جواد طالب

MODULE DESCRIPTION FORM

Module Information			
Module Title	BIODIVERSITY		Module Delivery
Module Type	Core learning activity		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	BIO1070		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGEC1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. MSc.
Module Tutor	اميرة يونس حسن	e-mail	Amerayounis7@uomosul.edu.iq
Peer Reviewer Name	ريان رياض كاظم سماح طلال سلطان	e-mail	rayan.rayadh@uomosul.edu.iq samah.talal@uomosul.edu.iq
Scientific Committee Approval Date	1/2/2026	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. Enable students to appreciate the importance of biodiversity conservation in addressing environmental challenges and climate change. 2. Provide students with fundamental concepts of biological diversity and the role of living organisms in ecosystems..
Module Learning Outcomes LOs	The student should be able to: LO#1: Identify classifications of living organisms and patterns of biological diversity in various environments. LO#2: Understand the evolutionary and genetic mechanisms that contribute to the emergence of biodiversity over time. LO#3: Evaluate threats to biodiversity and analyze the impact of human activities on ecosystems. LO#4: Propose suitable strategies for biodiversity conservation and the sustainable use of natural resources.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> The course covers fundamental concepts of biological diversity and taxonomic classifications, extending to ecosystem studies and methods for species and habitat conservation, with a focus on current threats and future challenges. Total hrs = 125 = SSWL - (Exam hrs) = 63-3 = 60 hrs (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
Strategies	1. (Interactive Lectures) 2. (Project-Based Learning) 3. (Case Studies) 4. (Field Trips) 5. (Group Discussions and Presentations)

Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Home Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	College Assignments	2	10% (10)	All	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Biological Diversity
Week 2	Taxonomy and Scientific Nomenclature
Week 3	Genetic Diversity and Evolution
Week 4	Ecological Diversity and Ecosystems
Week 5	Measuring Biodiversity and Its Indicators

Week 6	Factors Affecting Biological Diversity
Week 7	Mid-term Exam
Week 8	Environmental and Economic Value of Biodiversity
Week 9	Current Threats to Biodiversity
Week 10	Species Extinction and Conservation Strategies
Week 11	Biodiversity in Aquatic Ecosystems
Week 12	Biodiversity in Terrestrial Ecosystems
Week 13	Climate Change and Its Impact on Biodiversity
Week 14	Biodiversity and Sustainable Development
Week 15	Natural Resource Management and Sustainable Use
Week 16	Future Directions in Biodiversity Enhancement

Delivery Plan (Weekly Laboratory Syllabus)	
	Material Covered
Week 1	Future Directions in Biodiversity Enhancement
Week 2	Collection and Classification of Plant and Animal Samples
Week 3	Practical Applications of Scientific Nomenclature in the Lab
Week 4	Genetic Diversity Measurements and DNA Analysis Techniques
Week 5	Field Survey of Ecosystems (Forest or Agricultural)
Week 6	Biodiversity Assessment in Soil and Water Samples
Week 7	Monitoring Environmental Threats (e.g., Pollution and Biological Invasions)

Week 8	Community Analysis of Biotic Assemblages
Week 9	In-situ and Ex-situ Conservation Techniques
Week 10	Studying the Impact of Climate Change on Biotic Communities
Week 11	Field Visit to High-Biodiversity Areas
Week 12	Data Documentation and Analysis Using Statistical Software
Week 13	Designing Models for Biodiversity Conservation and Sustainable Use
Week 14	Developing Management Plans for Species Protection
Week 15	Presentation and Discussion of Research Findings and Practical Reports

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Gaston, K. (2010) Chapter 2: Biodiversity. In N.S. Sodhi & P. R. Ehrlich, Conservation Biology for All (pp. 27 - 43). Society for Conservation Biology.	-
Recommended Texts		-
Websites		

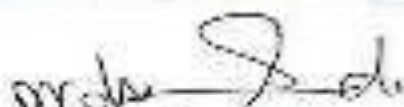
Grading Scheme

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

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


 رئيس قسم الدراسات العليا والبحوث
 أحمد وسام باقر عزيز




 رئيس الجامعة العلمية
 أ.م.د. أحمد مكي طه

MODULE DESCRIPTION FORM

Module Information			
Module Title	BIOSAFETY and SECURITY		Module Delivery
Module Type	Suport learning activity		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	BSS1050		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	2
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. MSc.
Module Tutor	N.A.	e-mail	N.A.
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/2/2026	Version Number	1.0

Relation with other Modules			
Prerequisite module	ACE1020	Semester	1
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1. Equip students with fundamental knowledge of biosafety and biosecurity principles and their practical application in agricultural, forestry, and food-related settings. 2. Enable students to develop the skills necessary to identify, assess, and manage biological hazards, ensuring the protection of human health, the environment, and food products.
Module Learning Outcomes LOs	The student should be able to: LO#1: Identify common biological hazards in agriculture, forestry, and food sectors, and assess their level of risk. LO#2: Apply biosafety and biosecurity principles and practices in accordance with recognized international standards and levels. LO#3: Design and implement prevention and control programs for biological hazards in laboratories and agricultural/food production facilities. LO#4: Adhere to ethical and legal considerations when handling biological materials, ensuring public health and environmental protection.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> The course covers the concepts of biosafety and biosecurity, risk assessment, regulations, and safe laboratory techniques, with practical training on using personal protective equipment, sterilization, and waste disposal. It also enhances understanding of emergency response and designing biosecurity protocols in agricultural and food sectors, aiming to ensure worker safety and protect products and the environment. Total hrs = 75 = SSWL - (Exam hrs) = 47-2 = 28 hrs (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	6. (Interactive Lectures) 7. (Project-Based Learning) 8. (Case Studies)

	9. (Workshops and Hands-On Training) 10. (Group Discussions and Presentations)
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Student Workload (SWL)			
Structured SWL (h/sem)	47	Structured SWL (h/w)	3
Unstructured SWL (h/sem)	28	Unstructured SWL (h/w)	2
Total SWL (h/sem)	75		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Home Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	College Assignments	2	10% (10)	All	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Biosafety and Biosecurity

Week 2	Types of Biological Hazards in the Agricultural and Food Sectors
Week 3	Risk Assessment and Management
Week 4	Biosafety Levels and International Standards
Week 5	Personal Protective Equipment (PPE) and Safe Work Practices
Week 6	Sterilization, Disinfection, and Biological Waste Disposal
Week 7	Mid-term Exam
Week 8	Safe Storage, Handling, and Transport of Biological Materials
Week 9	Good Laboratory Practices (GLP) and Quality Standards
Week 10	Biosecurity in Agriculture and Protection of Plant and Animal Resources
Week 11	Emergencies and Rapid Response to Biological Incidents
Week 12	Local and International Regulations on Biosafety and Biosecurity
Week 13	Ethical Considerations and Dual-Use of Biological Technologies
Week 14	Case Studies and Practical Applications in Biosafety and Biosecurity
Week 15	Workshops and Simulations for Biosafety Protocol Design
Week 16	Comprehensive Review and Final Assessment

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to Biosafety and Biosecurity
Week 2	Types of Biological Hazards in the Agricultural and Food Sectors
Week 3	Risk Assessment and Management
Week 4	Biosafety Levels and International Standards
Week 5	Personal Protective Equipment (PPE) and Safe Work Practices
Week 6	Sterilization, Disinfection, and Biological Waste Disposal
Week 7	Safe Storage, Handling, and Transport of Biological Materials
Week 8	Good Laboratory Practices (GLP) and Quality Standards
Week 9	Biosecurity in Agriculture and Protection of Plant and Animal Resources
Week 10	Emergencies and Rapid Response to Biological Incidents
Week 11	Local and International Regulations on Biosafety and Biosecurity
Week 12	Ethical Considerations and Dual-Use of Biological Technologies
Week 13	Case Studies and Practical Applications in Biosafety and Biosecurity
Week 14	Workshops and Simulations for Biosafety Protocol Design

Week 15	Comprehensive Review and Final Assessment
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Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Basics of Biological and Occupational Safety in Laboratories and Scientific Institutions / Ministry of Higher Education - University of Kufa / College of Agriculture - Department of Food Sciences.	-
Recommended Texts	Biosafety and Biosecurity Training and Education Materials/Biorisk Management Guide May 2020 - This guide was issued in cooperation with the Ministry of Higher Education and the Iraqi Ministry of Health.	-
Websites		

Grading Scheme

مخطط الدرجات

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

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



MODULE DESCRIPTION FORM

Module Information					
Module Title	ARABIC LANGUAGE 1		Module Delivery		
Module Type	Basic learning activities		Theory Lecture Lab ☐ Tutorial Practical Seminar		
Module Code	UOM1011				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level		1	Semester of Delivery		2
Administering Department		SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaïd fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhîm Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq	
Module Leader's Acad. Title		Professor Assistant Professor		Module Leader's Qualification	
				Ph.D. MSc.	
Module Tutor	N.A.		e-mail	N.A.	
Peer Reviewer Name		N.A.		e-mail	N.A.
Scientific Committee Approval Date		1/2/2026		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	9. Introducing students to the basics of the Arabic language. Also breaking the barrier of shyness and increasing their confidence inside and outside the classroom. 10. Engaging them in short discussions where they can write or express themselves orally. 11. Improving their reading, writing, listening and speaking skills as students, and strengthening students' literary ability to appreciate the styles of the language and realize its beauty . . 1
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Module Learning Outcomes	The student should be able to: LO#1: Create a full awareness of the correct use of Arabic grammar in writing and speaking. LO#2: Students will improve their ability to speak Arabic in terms of fluency and comprehension. LO#3: Students will review the grammatical forms of Arabic and use these forms in specific communicative contexts, which include: classroom activities, homework, reading texts, and writing. LO#4: Students will enhance their ability to write short paragraphs and summaries .using a process approach
Indicative Contents	Indicative content includes the following. Theoretical Introduction to communication in general and the Arabic language in particular, with an introduction to word categories (parts of speech) in Arabic {4 hours}. Explanation of each part of speech in Arabic such as nouns, pronouns, verbs, adjectives, adverbs, prepositions, conjunctions and conjunctions {16 hours}. Basic skills in learning Arabic: reading and writing are gradually introduced over the past weeks {6 hours}. The last part is dedicated to some error correction and feedback sessions {4 hours}. -Total hrs = 32 = SSWL - (Exam hrs) = 32 - 2 = 30 hr (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	36. Interactive lecture, Brainstorming 37. Dialogue and discussion 38. Assigning reports 39. Quizzes 40. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

	32		2
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	1
Total SWL (h/sem)	50		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	4,6,9	LO#1, LO#3
	Home Assignments	2	10% (10)	2 and 12	LO#1, LO#4
	Collage Assignments	1	5% (5)	10 and 11	LO#2
	Report	1	10% (10)	13	LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Speech and its parts
Week 2	Punctuation marks
Week 3	Subject and predicate
Week 4	An and its sisters
Week 5	Kan and its sisters

Week 6	Rules for writing numbers
Week 7	Midterm exam
Week 8	Surat Al-Fajr
Week 9	Its importance and explanation in addition to rhetorical, grammatical and semantic images
Week 10	The medial hamza and the extreme hamza
Week 11	The difference between the letter Ḍād and the letter Ḍād
Week 12	Literature Nazik Al-Malaika with her collections
Week 13	Prose styles Al-Jahiz and Abu Hayyan Al-Tawhidi
Week 14	The difference between the open taa and the closed taa
Week 15	Say and do not say
Week 16	Preparing the student for the final exam.

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	ين ذريل، عدنان " اللغة والأسلوب دراسة" الطبعة الثانية ، 2006	No
Recommended Texts	بحيري، سعيد حسن، "الاساس في فقه اللغة العربية 2000	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.				



MODULE DESCRIPTION FORM

Module Information			
Module Title	Agricultural Informatics		Module Delivery
Module Type	Core learning activity		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar
Module Code	AGI1080		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSEC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahatagi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	
		Ph.D. MSc.	
Module Tutor	N.A.	e-mail	N.A.
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/2/2026	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	This Module introduces students to the principles and applications of informatics in agriculture. Students will learn to utilize information technology, data analysis, and decision-support systems to enhance agricultural productivity while ensuring sustainable practices.
Module Learning Outcomes LOs	The student should be able to: LO#1. Understand the Role of IT in Agriculture and Forestry LO#2. Identify Key Digital Technologies for Modern Farming and Forestry LO#3. Recognize Foundational Concepts in Data Security and E-Commerce Explore Future Innovations in Agricultural Informatics -
Indicative Contents	The Agricultural Informatics module links information technology with agriculture, emphasizing modern tools such as IoT, GIS, AI, and big data to improve productivity and sustainability. It encompasses data management, precision farming, remote sensing, and decision support systems. Students acquire hands-on experience with GIS mapping, IoT configurations, and AI models, preparing them to address challenges like resource efficiency, climate adaptation, and food security through innovative, data-driven approaches. This module equips graduates to deploy advanced solutions in agriculture for a sustainable future.

Learning and Teaching Strategies

Strategies	41. Interactive lecture, Brainstorming 42. Dialogue and discussion 43. Assigning reports 44. Quizzes 45. Show examples for writing scientific reports in the correct formats.	1
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4

Total SWL (h/sem)	125
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Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4,11	LO#1, LO#3
	Assignments	2	10% (10)	9,13	LO#2, LO#4
	Projects/ Seminar	1	10% (10)	All	All
	Report	1	10% (10)	15	All
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO#1, LO#2
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Agricultural Informatics
Week 2	Agricultural Data Management Systems (ADMS)
Week 3	Internet of Things (IoT) in Agriculture
Week 4	Machine Learning and Artificial Intelligence in Agriculture
Week 5	Decision Support Systems (DSS) in Agriculture
Week 6	Using Drones in Agriculture
Week 7	Data Analysis in Agriculture
Week 8	Mid-term Exam
Week 9	Blockchain Technology and Food Traceability
Week 10	Mobile Applications in Agricultural Extension
Week 11	Forest Monitoring and Desertification Control Using Remote Sensing

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 12	Agricultural Machinery Management and Robotics: Self-Driving Tractors
Week 13	E-Commerce in the Agricultural Sector
Week 14	Data Security and Protection in Smart Agriculture
Week 15	The Future of Agricultural Informatics: Prospects and Innovations
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Projects Syllabus)	
	Material Covered
Week 1	Discussion on Agricultural Informatics Applications in Iraq.
Week 2	Designing a Simple Database for a Virtual Farm
Week 3	Using Spreadsheets for Yield Analysis
Week 4	Automated Pest and Disease Detection Using AI Algorithms
Week 5	Setting up a Simple Soil Monitoring Device Using Local Tools and Creating a Simple Irrigation DSS Model Using Excel
Week 6	Aerial Drone Surveys and Spectral Image Analysis
Week 7	Simulating GPS Use for Agricultural Mapping and Creating a Local Agricultural Map Using GIS

Week 8	Simulating Crop Tracking from Farm to Market
Week 9	Prototyping a Mobile Application for Agricultural Extension
Week 10	Designing a Simple Prototype of a Manual Robot
Week 11	Building a Small Greenhouse Using Local Materials
Week 12	Developing an E-Commerce Marketing Plan for an Agricultural Product
Week 13	Applications of Data Security in Smart Farming
Week 14	The Future and Innovations in Agricultural Informatics
Week 15	Final Project Presentations that present practical projects addressing local agricultural challenges focusing on feasible technology-based solutions.

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Choudhury, A., Biswas, A., Prateek, M., & Chakraborty, A. (2021). Agricultural Informatics: Automation Using IoT and Machine Learning. Wiley-Scrivener.	No
Recommended Texts	- Pierce, F. J., & Zhang, Q. (2016). Agricultural Automation: Fundamentals and Practices. CRC Press. - Shamtsyan, M., Pasetti, M., & Beskopylny, A. (2021). Robotics, Machinery and Engineering Technology for Precision Agriculture. Springer. - Li, D. (2016). Computer and Computing Technologies in Agriculture: Proceedings of CCTA. Springer. - Satapathy, S., Mishra, D., Vargas, A. R., & El-Bendary, N. (2022). Innovation in Agriculture with IoT and AI. Springer. - Singh, R., Gehlot, A., Singh, B., & Choudhury, S. (2022). Internet of Things (IoT) Enabled Automation in Agriculture. CRC Press. - Boote, K. J. (Ed.). (2021). Advances in Crop Modelling for Sustainable Agriculture. CAB International.	
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.

رئيس قسم الآداب والعلوم
أحمد وسام ياقو عزمل



رئيس الكلية العلمية
أحمد محمد طه

MODULE DESCRIPTION

Module Information			
Module Title	INTEGRATED PEST MANAGEMENT		Module Delivery
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	IPM2110		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGx11 UGII	Semester of Delivery	
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahatagi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	assistant professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	1/9/2025	Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	

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

Module Objectives	• Introducing students to the common types of pest and their effect on crops, and explaining their transmission methods and infection mechanisms. • Provide an understanding of the basic biology and ecology of pest, with an emphasis on the impact of environmental factors on their spread and development. • Students learned the skills of diagnosing caecilian infections and analyzing the factors affecting them, using laboratory tests and field observation. • Study means and methods of prevention and control of pest , including the use of pesticides and advanced agricultural techniques such as biological control. • Analyze the economic and environmental impacts of pest, and study sustainable and preventive management methods to reduce their impact on crops and the environment. • Enhancing students' skills in planning and implementing field experiments and scientific studies to effectively treat and control caecilian infestations. • Encouraging students to research and interact with modern literature and research in the field of pest, and to contribute to developing innovative solutions to meet current challenges in this field
Module Learning Outcomes	LO#1 :Understand the basic concepts of integrated management and identify examples of integrated management patterns. LO#2: Identify the types of pests LO#3:Identify the critical economic limit and the factors affecting it

	LO#4: Designing programs to manage major pests in our environment
Indicative Contents	1: The student is introduced to the concept of the history of Integrated pest management 2: The student explains the importance of plant pest 3: Gives examples of losses and damage caused by plant pest 4: Learn about the concept of critical economic limit and the factors affecting it 5: Learn examples of global integrated pest management programs 6: Learn examples of integrated management programs for local pests

Learning and Teaching Strategies

	- Brainstorming • Teamwork • Discussion • Discovery learning • Problem solving or problem-based learning • E-Learning • Practical field training • Think, discuss, share
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation

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

Delivery Plan (Weekly Syllabus)

	Material Covered	
Week 1	Introduction to Pest Management	
Week 2	Types and Classification of Pests	
Week 3	Weeds (Invasive Plants)	
Week 4	Pest Life Cycle and Its Importance	
Week 5	Agricultural Control	
Week 6	Chemical Pesticides – Introduction & Risks	
Week 7	Mid-term Exam	
Week 8	Biological Control	
Week 9	Biological vs. Chemical Control Comparison	

Week 10	Weed Control: Methods & Techniques	
Week 11	Integrated Pest Management (IPM)	
Week 12	Monitoring Tools & Early Detection	
Week 13	Pest Management in Organic Farming	
Week 14	Role of Technology in Pest Management	
Week 15	Economic and Social Aspects	

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered	
Week 1	Study examples of local pests and their economic or environmental impact.	
Week 2	Collect pest samples from fields and use available tools to classify them by type.	
Week 3	Classify the most important weeds in your area and identify the crop affected.	
Week 4	Understand the life cycle of a widespread pest and determine the best stage for control.	
Week 5	Comparative study of the pros and cons of control methods.	
Week 6	Case study of a disaster resulting from the misuse of a pesticide.	
Week 7	Mid-term Exam	
Week 8	Review successful examples of biological control.	
WEEK 9	Practical analysis of the possibility of completely eliminating pesticides.	

Week 10	Field tour. Identify the most important weed control methods.	
Week 11	Design a simple IPM plan for a crop (such as wheat or tomatoes).	
Week 12	- Sampling methods. - Explaining the steps for using insect traps in the field.	
Week 13	Comparison between control methods in organic and conventional agriculture.	
Week 14	Observations on the use of technology in pest management and its advantages	
Week 15	A feasibility study comparing the use of single .and integrated pest management methods Extension methods and technology transfer for .integrated pest management	
Week 16	Preparatory week before the final Exam	

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Integrated pest management	Yes
Recommended Texts	lectures.	Yes
Websites	Food and Agriculture Organization of the United Nations (FAO) – IPM Website • Link: http://www.fao.org/ipm University of California – IPM Center (UC IPM) • Link: http://ipm.ucanr.edu • "Agricultural Pest Management" book by Dr. Mohamed Abdel Rahman (Cairo or Al-Azhar University).	

	• Guide to Integrated Pest Management in the Arab World • "Insect Pest Management" book by Dr. Nizar Mustafa Al-Mulla
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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.

رئيس قسم الزراعة وتلف الثقلبات
أ.م.د. محمد باقر عزيز



رئيس اللجنة العليا
أ.م.د. أحمد جواد طالب

MODULE DESCRIPTION

Module Information				
Module Title	ARABIC LANGUAGE 2		Module Delivery	
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM1012			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGII	Semester of Delivery		
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader’s Acad. Title		Professor Assistant Professor	Module Leader’s Qualification Ph.D. MSc.	
Module Tutor	N.A.		e-mail	N.A.
Peer Reviewer Name		N.A.	e-mail	N.A.
Scientific Committee Approval Date		1/9/2025	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	12. Introducing students to the basics of the Arabic language. Also breaking the barrier of shyness and increasing their confidence inside and outside the classroom. 13. Engaging them in short discussions where they can write or express themselves orally. 14. Improving their reading, writing, listening and speaking skills as students, and strengthening students' literary ability to appreciate the styles of the language and realize its beauty .
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Module Learning Outcomes	The student should be able to: LO#1: Create a full awareness of the correct use of Arabic grammar in writing and speaking. LO#2: Students will improve their ability to speak Arabic in terms of fluency and comprehension. LO#3: Students will review the grammatical forms of Arabic and use these forms in specific communicative contexts, which include: classroom activities, homework, reading texts, and writing. LO#4: Students will enhance their ability to write short paragraphs and summaries .using a process approach
Indicative Contents	Indicative content includes the following. Theoretical Introduction to communication in general and the Arabic language in particular, with an introduction to word categories (parts of speech) in Arabic {4 hours}. Explanation of each part of speech in Arabic such as nouns, pronouns, verbs, adjectives, adverbs, prepositions, conjunctions and conjunctions {16 hours}. Basic skills in learning Arabic: reading and writing are gradually introduced over the past weeks {6 hours}. The last part is dedicated to some error correction and feedback sessions {4 hours}. -Total hrs = 32 = SSWL - (Exam hrs) = 32 - 2 = 30 hr (Time table 2 hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	46. Interactive lecture, Brainstorming 47. Dialogue and discussion 48. Assigning reports 49. Quizzes 50. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

Structured SWL (h/sem)	32	Structured SWL (h/w)	2
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Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	1
Total SWL (h/sem)	50		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (15)	4,6,9	LO#1, LO#3
	Home Assignments	2	10% (10)	2 and 12	LO#1, LO#4
	Collage Assignments	1	5% (5)	10 and 11	LO#2
	Report	1	10% (10)	13	LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Arabic Language / Word Types and Definitions
Week 2	Pronouncing the Hamzat al-Qat' and al-Wasl
Week 3	Rules for Writing the Hamza
Week 4	Writing the Ta' at the End of a Word
Week 5	How to Look Up Words in Arabic Dictionaries
Week 6	Constructed and Inflected Words and Original and Secondary Inflectional Marks
Week 7	midterm exam
Week 8	Nominal Sentences and Punctuation
Week 9	Verbs of Approximation, Hope, and Initiation
Week 10	Number Rules in terms of Syntax and Structure, and in terms of Definiteness and Indefiniteness
Week 11	Linguistic Errors
Week 12	Defective Verbs
Week 13	Pronunciation and Writing of the Letters Ḍād and Ẓād
Week 14	Morphological Variation
Week 15	Poetry and Its Types

Week 16	Preparing the student for the final exam.
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Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Comprehensive Grammar - Abbas Hassan	No
Recommended Texts	Simplified Grammar, by Sheikh Adham Al-Asami	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.



MODULE DESCRIPTION

Module Information			
Module Title	DESIGN AND ANALYSIS OF EXPERIMENTS		Module Delivery
Module Type	Core		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	DAE2160		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGx11	Semester of Delivery	3
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq

	Sumood Husain Ai Al-Hadedy		
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D
Module Tutor	N.A.	e-mail	e-mail
Peer Reviewer Name	N.A.	e-mail	E-mail
Scientific Committee Approval Date	1/9/2025	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	Enable the student to learn how to design experiments in the agricultural field in general and animal production in particular and understand and apply all laws related to analysis processes and testing results and choose the appropriate design for the experiment, how to distribute the parameters to the experimental units, and record the observations to be able to collect data, classify and analyze it, conduct a significance test.
Module Learning Outcomes	The student should be able to: LO#1: Learn and comment on basic statistical topics and analysis LO#2: Statistical package learns data entry . LO#3: Performs statistical analyzes and interprets the results LO#4: Student Performs statistical analyses and comments
Indicative Contents	Indicative content includes the following. Theoretical

	Enabling the student to learn how to read practical research data and analyze it well, and to understand how electronic statistical analysis programs such as SAS and SPSS work, Total hrs = 63= SSWL - (Exam hrs) = 63-3= 60 (Time table 4hrs x 15 weeks)
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Learning and Teaching Strategies

Strategies	1. Interactive lecture, Brainstorming 2. Dialogue and discussion 3. Assigning reports 4. Quizzes 5. Show examples for writing scientific reports in the correct formats .
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	1
Total SWL (h/sem)	125		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, LO #3
	Assignments	2	10% (10)	2 and 12	LO #1, LO #4

	Projects/Lab	-	-	-	-
	Report	1	10% (10)	13	all
Summative assessment	Midterm Exam	2hr	10% (10)	7	all
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Some statistical measure
Week 2	Chapter One (Introduction)
Week 3	Completely randomized des
Week 4	Comparing between averages
Week 5	Comparing between average
Week 6	Some of Mistakes that Researcher may be do it in experiments.
Week 7	Randomized complete block design
Week 8	Mid-Term Exam.
Week 9	Randomized complete block design (relative efficiency comparing with Complete Randomize Design), estimating missing observation.
Week 10	Latin square design
Week 11	Latin square design (relative efficiency comparing with another two Designs [RCBD, and CRD])
Week 12	Latin square design (estimating the missing observation)
Week 13	Factorial experimen
Week 14	Factorial experiments
Week 15	Scientific visit

Week 16	Term Exams .
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Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Measures of concentration and measures of dispersion
Week 2	Completely randomized design (C.R.D.) solving method
Week 3	Completely randomized design (C.R.D.) some indirect questions and give homework
Week 4	Dunnett test, least significant difference l.s.d
Week 5	Duncan Multiple Range Test
Week 6	Some of General Mistakes that may be the researcher do it.
Week 7	completely randomized block design direct
Week8	completely randomized block design in direct
Week9	Relative efficiency and missing observations in a completely randomized block design
Week10	Direct questions in Latin square design
Week11	Indirect questions in the Latin square design
Week12	Relative efficiency of the Latin square design
Week13	missing observations in a Latin square design
Week14	Factorial experiments
Week15	Factorial experiments
Week16	Final practical test

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Design and Analysis of Agricultural Experiments Authored by: Dr. Khasha' Al-Rawi and Dr. Abdulaziz Muhammad	Yes
Recommended Texts	Some lectures published on the college website	Yes
Websites	Websites specialized in Statistics and Data Analysis .	

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
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 والاس قسم الارشاد اذ اعز وثلث لثقتيات
 اعدت وسلم بطور حزين




 رئيس الكلية العلمية
 ا.د. احمد عواد طه

MODULE DESCRIPTION

Module Information					
Module Title	FOOD TECHNOLOGIES and HEALTH AGRICULTURAL PRODUCTS		Module Delivery		
Module Type	Core learning activity		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar		
Module Code	FTP2150				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	UG11				
Semester of Delivery		3			
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGE1979, AETT1979, AGME1986		College	AGFO1964	
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firmaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq	
Module Leader's Acad. Title	Professor Assistant Professor		Module Leader's Qualification		Ph.D. MSc.
Module Tutor	N.A.		e-mail	N.A.	
Peer Reviewer Name	N.A.		e-mail	N.A.	
Scientific Committee Approval Date	1/9/2025		Version Number		1.0

Relation with other Modules			
Prerequisite module	BSS1050	Semester	2

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

Module Objectives	1- To provide students with the fundamental concepts of food technology and its role in reducing agricultural losses and achieving food security. 2- To enable students to understand the impact of preservation and processing techniques on the quality and safety of agricultural and animal products within the framework of good agricultural practices. 3- To introduce students to the factors affecting the health and safety of food products, including genetic modification, pesticide residues, and relevant regulations. 4- To raise awareness of the importance of sustainable development in managing natural resources, protecting the environment, and ensuring the continuity of the food supply chain.
Module Learning Outcomes LOs	By the end of this course, the student will be able to: LO#1: Explain the fundamental concepts of food technology, including food processing and preservation methods, and their role in achieving food security and sustainable development. LO#2: Evaluate the quality of agricultural and animal products, analyze sources of contamination, and propose solutions within the framework of good agricultural practices (GAP). LO#3: Distinguish between food safety regulations and standards, and apply them in analyzing the production chain to ensure consumer safety. LO#4: Demonstrate ethical and professional responsibility toward community health and environmental protection through the adoption of sustainable and safe food production practices.
Indicative Contents	The guidance content includes the following: Guidance Content (Theoretical): Introduce students to the fundamentals of food technology and its role in food security, explain how processing and preservation techniques affect product quality and safety, and reinforce concepts of sustainability and health regulations. Guidance Content (Practical): Simple applications of food processing techniques, with analysis of barriers to their adoption in local communities and proposing feasible solutions. Total hrs = 63 = SSWL - (Exam hrs) = 63-3= 60 (Time table 4 hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	1- Interactive Lecture and Brainstorming 2- Dialogue and Discussion
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	3- Case Study 4- In-Class Experiments 5- Mini Field Visits (Real or Virtual)
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Student Workload (SWL)			
Regular student load during the semester	63	Regular weekly student study load	4
Irregular student load during the semester	62	Irregular student study load per week	4
The student's total academic load during the semester	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	Projects/ Practical	3	10% (10)	4, 8 and 12	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Food Technology and its objectives. The role of food processing in reducing post-harvest losses and achieving food security.

	Concepts of Sustainable Development in the agricultural and food sectors.
Week 2	Traditional and modern food preservation methods (drying, canning, refrigeration, smart packaging). Impact of preservation techniques on the sustainability of natural resources and product quality.
Week 3	Food processing technologies for field crops (grains, legumes) with a focus on sustainability and loss reduction. Extraction of vegetable oils and techniques for improving production efficiency.
Week 4	Processing horticultural products (fruits and vegetables): canning, juices, jams. The relationship between horticultural product quality and food security.
Week 5	Dairy and meat technology: preservation, processing, sustainable practices. Management of animal industrial waste according to environmental sustainability standards.
Week 6	Modern technologies in food industries (smart packaging, functional foods). The impact of the food industry on Sustainable Development Goals (SDGs).
Week 7	Mid-term Exam
Week 8	Introduction to the health and safety of food products (plant and animal origin). Regulations and standards to ensure food safety.
Week 9	Safety of animal products (dairy, meat, eggs): sources of contamination, zoonotic diseases. Management of animal supply chains within the framework of environmental and health sustainability.
Week 10	Safety of plant products: chemical and biological contamination (pesticides, fungi, mycotoxins). Good Agricultural Practices (GAP) to achieve sustainable quality and safety of agricultural products.
Week 11	Genetic modification (GMOs) in agricultural crops: objectives, risks, opportunities. The relationship between biotechnology and achieving food security within sustainability frameworks.
Week 12	Quality management of horticultural products from farm to consumer. Applications of modern technologies in monitoring the health of plant products.
Week 13	The concept of agricultural protection as an entry point to ensure the quality and safety of agricultural products. Impact of Integrated Pest Management (IPM) on reducing pesticide residues in products. How sound preventive practices help maintain product characteristics (color, texture, flavor, and absence of contaminants).
Week 14	Types of agricultural pesticides and their direct effects on product quality.

	Methods to reduce pesticide residues in food products (washing, thermal treatments, biotechnological techniques). Regulations and controls to limit pesticide residues in foods (standards, Good Agricultural Practices - GAP). The relationship between environmental sustainability and food product safety in pesticide use.
Week 15	Managing natural resources (water, soil, energy) to ensure healthy and safe agricultural products. The impact of sustainability in agricultural practices on food product health (low-impact technologies). Sustainable food security: the relationship between (product health – environmental protection – resource conservation). Practical examples (International projects, case studies from Iraq).
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Practical Syllabus)

	Material Covered
Week 1	Introductory tour of the food laboratory (or theoretical explanation supported by images/videos) + discussion of basic practical skills
Week 2	Food preservation experiment using drying (with local vegetables or fruits)
Week 3	Preservation using salt or sugar (making jam or pickles)
Week 4	Oil extraction from sesame seeds (preparing tahini)
Week 5	Sensory evaluation of natural juice or preserved horticultural product
Week 6	Inspection of preserved meat or dairy products (sensory analysis + spoilage signs)
Week 7	Hands-on application: reading nutrition labels and health data of canned food products
Week 8	Visual inspection and analysis of contamination residues in a plant-based product (comparing market samples)
Week 9	Case study on a genetically modified product (video presentation or booklet + scientific discussion)
Week 10	Educational field visit to a food or dairy factory
Week 11	Theoretical and practical classification of spoilage types in plant and animal food products
Week 12	Interactive assessment: linking preservation methods to environmental impact (sustainability perspective)
Week 13	Practical model of quality control in the production chain (from farm to consumer)
Week 14	Student mini-project presentations (e.g., idea for a safe food product + packaging design)
Week 15	Final practical exam + self-assessment of the practical course

Learning and Teaching Resources

	Text	Available in the Library?
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Required Texts	N.A.	-
Recommended Texts	- <i>Principles of Food Industries</i> - Food Safety – Printed Lectures	Yes
Websites		

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


 رئيس قسم الزراعة ولعل القابلات
 أ.د. وسعد بن علي عزيير




 رئيس اللجنة العلمية
 أ.د. أحمد جواد طالب

MODULE DESCRIPTION FORM

Module Information			
Module Title	TECHNIQUES FARM SUSTAINABLE	Module Delivery	
Module Type	Core learning activity	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar	
Module Code	SFT3240		
ECTS Credits	5		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	AETT1979	College	AGFO1964
Module Leader	Wisam Yako Aziz	e-mail	
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	
Module Tutor	Roaa Mohammed Hamid	e-mail	ruaa.mohammed@uomosul.edu.iq
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/9/2025	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 digital and sustainable management skills: Enabling rural individuals to manage farm resources (soil, water, energy) using smart systems and automation tools to achieve maximum productivity efficiency. 2. Fostering Environmental Awareness and Responsibility towards Natural Resources: Instilling a sense of responsibility in students and farmers towards protecting the environment by adopting bioremediation technologies and waste recycling (biogas and compost) to ensure the sustainability of the land for future generations. 3. Enhancing Rural People's Confidence in Modern Technologies (Artificial Intelligence and the Internet of Things): Shifting farmers' attitudes towards "embracing progress" by breaking down the barrier of distrust towards machinery and software, and demonstrating the role of "precision agriculture" and drones in reducing physical labor and increasing profits. 4. Improving the Competitiveness and Marketing Capability of Rural Products: Utilizing digital traceability technology, agricultural platforms, and smart storage systems to reduce losses and improve crop quality, thus ensuring that rural products can compete in digital and global markets.
Module Learning Outcomes LOs	The student should be able to: LO#1: Understand the concepts and technical foundations of sustainable farming systems (such as precision agriculture, the Internet of Things, and energy and soil technologies). LO#2: Identify appropriate means to engage farmers in the development and adoption of smart farming technologies and address their technical concerns. LO#3: Propose suitable engineering technologies (such as smart greenhouses or early warning systems) for field problems, in accordance with economic feasibility. LO#4: Assume ethical and professional responsibilities in the transfer and use of sensitive technologies (such as genetically modified seeds and nanotechnology). O#1:
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> Developing the correct management skills to transfer and adopt agricultural technologies in the precise specialty and identifying appropriate means to guide the rural community to adopt modern and specialized technologies in the field of agricultural engineering, as well as identifying the types of technologies and how to employ them to develop work in the field of agricultural engineering sciences and methods of transferring them to society to reach high production and quality. <u>Practical application</u> The most important modern technologies in the field of agricultural engineering will be addressed, the most important reasons for their lack of spread will be discussed, and solutions will be put forward for adopting these technologies. Total hrs = 63 = SSWL - (Exam hrs) = 63-3= 60 (Time table hrs x 15 weeks)

Learning and Teaching Strategies	
Strategies	51. Interactive lecture, Brainstorming 52. Dialogue and discussion 53. Assigning reports 54. Quizzes 55. Show examples for writing scientific reports in the correct formats.

Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	Projects/ Practical	3	10% (10)	4, 8 and 12	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to Sustainable Farm Technology: Concept, Importance, and Environmental and Economic Dimensions.

Week 2	Sustainable Soil Management: Physical and Chemical Properties and the Importance of Biomass.
Week 3	Sustainable Water Technology: Water Use Efficiency, Desalination, and Modern Irrigation Systems.
Week 4	Renewable Energy on the Farm: Solar Energy, Wind Energy, and Biomass.
Week 5	Precision Agriculture: Geographic Information Systems (GIS) and Crop Mapping.
Week 6	Remote Sensing Systems: Ground-Based and Space-Based Sensors and Their Operating Principles.
Week 7	Mid-term Exam
Week 8	Smart Agriculture Using the Internet of Things (IoT): The Concept of IoT and Connecting Equipment to the Network
Week 9	Artificial Intelligence and Decision Support Systems
Week 10	Sustainable Pest Management (IPM): Biological Control and Integrated Technologies
Week 11	Smart Greenhouse Systems: Automated Environmental Control (Temperature, Humidity, Lighting)
Week 12	Sustainable Management of Agricultural Outputs and Supply Chains: Digital Traceability and Quality Values
Week 13	On-Farm Sustainability Assessment: Key Performance Indicators (KPIs) and Environmental Impact
Week 14	Economics of Sustainable Farm Technology: Financial Feasibility, Funding Sources, and Digital Platforms
Week 15	The Future of Sustainable Farm Technology: Genetically Improved Seeds, Nanotechnology, and Ethics
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Practical Syllabus)	
)Application, obstacles, and solutions(	
	Material Covered
Week 1	Conservation and vertical farming: A review of sustainable systems and a discussion of space constraints and operating costs.
Week 2	Soil Bioremediation: Practical application of using microorganisms and plasma treatment to improve fertility.
Week 3	Water Recycling Systems: Practical application of closed irrigation systems and addressing farmers' concerns about water quality.
Week 4	Biogas Production: Converting waste into energy and discussing the challenges of establishing the necessary technology and maintaining biodigesters.
Week 5	Precision Agriculture Applications: Using drones for surveying and addressing regulatory constraints and high costs.
Week 6	Wireless Sensor Networks (WSNs): Connecting sensors in the field and addressing issues of signal interference and weak internet connectivity.
Week 7	Livestock and Animal Monitoring Systems: Using wearable devices and addressing challenges related to animal handling.
Week 8	Digital Analysis and Forecasting: Application of forecasting software and addressing the trust barrier between farmers and machines.

Week 9	Early Warning Systems (EWS): Applications of epidemic prediction and addressing the rapid response gap for farms.
Week 10	Automated Smart Homes: Practical application of control panels and addressing high energy consumption issues.
Week 11	Seed Treatment (Plasma, Genetics): Methods for improving germination and obstacles to rejection of modified seeds.
Week 12	Agricultural Waste Recycling Systems: Converting waste into compost, and obstacles to transportation and field sorting.
Week 13	Smart Crop Storage: Cooling and climate control technologies, and addressing quantitative and qualitative losses.
Week 14	Digital Agricultural Platforms: A simulation of online crop sales, and addressing issues of intermediation and marketing.
Week 15	Fully Automated Smart Homes: A review of agricultural robots and a discussion of the future of labor.

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	N.A.	-
Recommended Texts	- Pretty, J. (2018). <i>Sustainable Agriculture and Food Systems</i>. Routledge. - FAO. (2022). <i>Smart irrigation technologies for sustainable agriculture</i>. Food and Agriculture Organization of the United Nations. Rome. - Wolfert, S., Ge, L., Verdouw, C., & Bogaardt, M. J. (2017). Big data in smart farming – A review. <i>Agricultural Systems</i>, 153, 69–80. https://doi.org/10.1016/j.agsy.2017.01.023 - Zhang, C., & Kovacs, J. M. (2012). The application of small unmanned aerial systems for precision agriculture: A review. <i>Precision Agriculture</i>, 13(6), 693–712. https://doi.org/10.1007/s11119-012-9274-5 - Twidell, J., & Weir, T. (2015). <i>Renewable Energy Resources</i> (3rd ed.). Routledge.	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
Not of 5 con rou  example a mark a policy NOT to be the automatic				

Course Description Form

Course information					
Module Title	agricultural production technology		Module Delivery		
Module Type	Core learning activity		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar		
Module Code	APT2140				
ECTS Credits	5				
SWL (hr / sem)	125				
Module Level	2		Semester of Delivery		1

Administration Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964	
Module Leader	Zwaid Fathi abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED Wisam yako Aziz Masso Sumood Husain Ai Al- Hadidy	e-mail	zu-kh1985@uomosul.edu.iq dr.omarallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq	
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification		Ph.D. MSc.
Module Tutor	NA	e-mail	NA	
Peer Reviewer Name	NA	e-mail	NA	
Scientific Committee Approval Date	1/9/2025	Version Number		1.0

Relationship with other subjects

Prerequisite module	BSS1050	Semester	2
Co-requisites module	None	Semester	

Course objectives, learning outcomes, and guiding content

Course objectives	5- Introducing the basic concepts and principles underlying agricultural animal husbandry techniques and methods to improve productivity, and instilling values of ethical and safe handling of animals to ensure the safety and health of · consumers
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	2. Introduce students to the types of farm animals and their classification. Enhance students' skills in field operations related to farm animals and problem-solving in the field of animal production. 3-Providing the student with basic knowledge in horticulture and types of horticultural plants, including fruits, vegetables, and ornamental plants, as well as soil preparation, modern irrigation techniques, and pest and disease control, .enabling him to understand all stages of production 4-It includes the basics of plant nutrition and focuses on modern techniques such as hydroponics, protected agriculture, post -harvest operations and marketing, .giving the student a comprehensive view of the production process
Learning outcomes for the subject	: The student will be able to LO#1 Identify the types of economic animals and their production stages and cycles, and : . develop and apply the cognitive and emotional abilities related to animal production LO#2 Acquire practical skills in establishing and managing fields, caring for animals :, and handling production records, using modern technologies. LO#3 Identify the basics of plant production, starting with soil characteristics and : plant nutrition, and progressing to mastering methods of propagation and plant .care LO#4 Gain skills for production from farm to market and understand post- harvest : . and marketing processes to ensure crop quality and economic value
Guidance contents	. : The guidance content includes theoretical Introducing students to the economic importance of livestock, animal species and classification, and field, administrative, and technical operations on animal farms, with the aim of preparing specialized agricultural engineers capable of dealing . with animal production problems using modern technologies It provides the student with a comprehensive view of all stages of plant production, from soil preparation, irrigation techniques, modern agriculture, plant propagation, plant care, and post-plant management. Harvest

Learning and teaching strategies	
Strategies	,Interactive lecture .1brainstorming Dialogue and .2discussion Case .3study Classroom .4experiments Mini-visits .5, .real or virtual

.The student's academic load is calculated as 15 weeks

Regular student load during the semester	63	Regular weekly student workload	4
Irregular student load during the semester	62	Irregular student study load per week	4
The student's total academic load during the semester	125		

Course material evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	Projects/ Practical	3	10% (10)	5, 10 and 14	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	3 hours	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3 hours	50% (50)	16	All
Total assessment			100% (100 Marks)		

Theoretical weekly curriculum

	Material Covered
Week 1	Basics of Horticultural Plant Production: Definition of horticulture, its importance, and its main divisions (vegetables, fruits, ornamental plants)
Week 2	of protected agriculture , types of greenhouses, and The importance modern agricultural techniques the concept and types of hydroponics
Week 3	Methods of plant propagation: sexual propagation, vegetative propagation, and tissue culture
Week 4	Pruning trees and plants, pruning objectives, types of pruning and appropriate times
Week 5	Pests and diseases, their control, harvesting and marketing of horticultural products

Week 6	Definition of field crops, types of field crops, divisions of field crop science, importance of field crops .in providing food security
Week 7	Environmental factors in Iraq and the world and their relationship to the growth of field crops, .location and surface, climate, soil, water resources Mid-term Exam
Week 8	.Classification of field crops, according to life cycle
Week 9	.Major crops in the world and Iraq
Week 10	Agricultural rotations , modern methods of field crop management
Week 11	The economic importance of livestock, challenges and future prospects for expanding production
Week 12	Cattle types, dairy cows, beef cows, dual-purpose cows, Iraqi cows and calf breeding
Week 13	Global and local sheep and goat breeds, as well as methods of establishing sheep flocks.
Week 14	Poultry, its economic importance, and the conditions for establishing and types of poultry farms. Classification of chicken breeds
Week 15	Buffalo, general characteristics of buffalo and types of buffalo
Week 16	Preparatory week before the final exam

Weekly curriculum for practical application

	Material Covered
Week 1	Field visit to the horticultural facilities and learning about the horticultural facilities
Week 2	.Learn about basic tools and equipment and prepare suitable soil mixes for planting
Week 3	Practical application of plant propagation methods, planting seeds and cuttings
Week 4	Carry out pruning of some plants and trees and identify the objectives of each type of pruning
Week 5	Determine the maturity signs of some crops, such as tomatoes or cucumbers, and .harvest the crop
Week 6	Crop service operations (land preparation – seeding – pest control – irrigation – harvesting (post-harvest operations –
Week 7	Botanical description of the most important field crops
Week 8	.Design of agricultural rotations and their types
Week 9	Modern methods of field crop management and the use of smart agriculture
Week 10	.How to deal with climate change in field crop production
Week 11	Field operations in livestock farms
Week 12	Milking, milking methods
Week 13	Suckling, caring for young animals, and weaning methods.
Week 14	Animal housing and construction methods
Week 15	Types of records, methods of organizing, and their importance in managing production projects

Learning and teaching resources

	Text	Available in the Library?
Required Texts	NA	-
Recommended Texts	- Principles of Animal Production - Principles of gardening - Theoretical :Fundamentals of Field Crop Production and Practical	yes
Websites		

Grading scheme

Group		Appreciation	Marks %	Definition
Success Group (50 - 100)		privilege	90 - 100	Outstanding Performance
		very good	80 - 89	Above average with some errors
		good	70 - 79	Sound works with notable errors
		middle	60 - 69	Fair but with major shortcomings
		acceptable	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)		Precipitate (in (process	(45-49)	More work required but credit awarded
		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

Module Information				
Module Title	CRIMES of the BAATH REGIME in IRAQ		Module Delivery	
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM2050			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UG11	Semester of Delivery		
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986		College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy		e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader’s Acad. Title	Professor Assistant Professor		Module Leader’s Qualification Ph.D. M.Sc.	
Module Tutor	N.A.		e-mail	N.A.
Peer Reviewer Name	N.A.		e-mail	N.A.
Scientific Committee Approval Date	1/9/2025		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. The learner will understand what a crime is and its types. 2. The learner will be able to explain and clarify the crimes committed by the Ba'ath regime in Iraq. 3. The students will be familiar with international and local laws criminalizing the actions of the Ba'ath regime in Iraq. 4. The student will understand the extent of the crimes committed by the Ba'ath regime in Iraq by highlighting these crimes. 5. The learner will be able to provide examples of these crimes and the locations where they occurred. 6. The learner will understand the psychological and social effects of the crimes committed by the Ba'ath regime on the personality of the Iraqi citizen. 7. The learner will understand the environmental effects of the crimes committed by the Ba'ath regime on the Iraqi environment. 8. The learner will identify the graves left behind by the former Ba'ath regime, identifying their location and time of occurrence.
Module Learning Outcomes LOs	The student should be able to: LO#1: Understanding and identifying crimes LO#2: Understanding the dimensions and effects of crimes LO#3: Legal framework for crimes LO#4: Documenting crimes
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> Enriching students' knowledge about understanding crime and its types, with a focus on the crimes committed by the Ba'ath regime in Iraq. Delving into the extent of the crimes committed by the regime, providing examples and identifying the locations of their occurrences, and understanding their psychological, social, and environmental impacts. It also explores local and international laws criminalizing these acts, identifying mass graves left behind by the regime, and identifying their locations and times Total hrs = 32 = SSWL - (Exam hrs) = 32-2 = 30 hrs (Time table 2hrs x 15 weeks).
Learning and Teaching Strategies	
Strategies	56. Interactive lecture, Brainstorming

	57. Dialogue and discussion 58. Assigning reports 59. Quizzes 60. Assigning group work to reveal leadership skills
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Student Workload (SWL)			
Structured SWL (h/sem)	32	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	2
Total SWL (h/sem)	50		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	20% (20)	2 and 13	LO#1 and LO#3
	Projects / Lab.	-	-	-	-
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	The Concept of Crimes and Their Categories
Week 2	Crimes of the Ba'ath Regime According to the Documentation of the Iraqi Criminal Court Law of 2005
Week 3	Militarization of Society
Week 4	The Ba'ath Regime's Position on Religion and Its Violations of Iraqi Law
Week 5	Some Decisions Concerning Political and Military Violations of the Former Ba'ath Regime
Week 6	Prison and Detention Facilities of the Ba'ath Regime in Iraq
Week 7	Mid-term Exam
Week 8	Environmental Crimes of the Ba'ath Regime
Week 9	1. War and Radioactive Pollution and Mine Explosions 2. Destruction of Cities and Villages (Scorched Earth Policy)

Week 10	Draining the Marshes in Southern Iraq Destroying Orchards, Palm Trees, Trees, and Crops
Week 11	Mass Grave Crimes ,The Events of 1963 and Their Relationship to Mass Graves
Week 12	1- The Events of 1979 to 1988 and Their Relationship to Mass Graves 2- The Events of 1987 to 1988 and Their Relationship to Mass Graves
Week 13	The Events of the 1991 Sha'ban Uprising and Their Relationship to Mass Graves
Week 14	Chronological Classification of Mass Graves and Genocide in Iraq 1963 to 2003
Week 15	1: Mass Graves Against the Kurds 1983 2: The Anfal Massacre 1987-1988 3: Graves of the Sha'ban Uprising in Iraq 1991
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Crimes of the Ba'ath Regime in Iraq, 2023	Yes
Recommended Texts	1-Ihsan Hindi, Military Occupation. 2- Jundi Abdulmalik, Criminal Encyclopedia. 3- Mass Graves in Iraq, by Human Rights Watch. 4- Journal of Human Rights and Public Liberties. 5- Antonio Cassese, International Criminal Law.	No
Websites	https://iraqicenter-fdec.org/archives/5146	

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.


 رئيس قسم الآداب والعلوم الإنسانية
 أ.د. وسام محمد عيسى


 رئيس اللجنة العلمية
 أ.د. أحمد عواد طالب



MODULE DESCRIPTION

Module Information

Module Information			
Module Title	ENGLISH LANGUAGE 2		Module Delivery
Module Type	Basic learning activities		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UOM2022		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGx111	Semester of Delivery	4

Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaïd fathiyy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhîm Dawoo Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. M.Sc.
Module Tutor	N.A.	e-mail	N.A.
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	15/12/2025	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-(Scientific Structural Competence) 2-(Analytical Reading & ESP Terminology) 3-(Translation Accuracy) 4-(Critical Communication & Fluency)
Module Learning Outcomes LOs	The student should be able to:

	LO#1: Demonstrate grammatical accuracy by using advanced verb aspects (Progressive & Perfect) and Passive Voice to describe agricultural processes and scientific experiments effectively. LO#2: Analyze specialized agricultural and literary texts to identify main ideas, deduce the meaning of technical terms within context, and deconstruct complex sentence structures. LO#3: Apply translation techniques to accurately transfer scientific concepts and texts from English into Arabic, maintaining terminological precision and appropriate scientific style. LO#4: Engage in critical discussions and debates regarding cultural and controversial topics, demonstrating the ability to articulate opinions and evaluate arguments confidently.
Indicative Contents	Indicative content includes the following. <u>Theoretical</u> • Advanced Grammar & Diagrams: Progressive and Perfect Tenses, Passive Voice, and Morphology. • ESP Reading: Analysis of specialized agricultural texts and scientific reports. • Translation: English-to-Arabic translation of scientific and geographical concepts. • Oral Skills & Culture: Debates, cultural discussions, and media analysis to enhance fluency. Total hrs = 32 = SSWL - (Exam hrs) = 32-2= 30 (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	61. Interactive lecture, Brainstorming 62. Dialogue and discussion 63. Assigning reports 64. Quizzes 65. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

Structured SWL (h/sem)	32	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	18	Unstructured SWL (h/w)	2

Total SWL (h/sem)	50
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Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2
	Assignments	2	20% (10)	2 and 13	LO#1 and LO#3
	Projects / Lab.	-	-	-	-
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Continuous Aspect & Verb Types
Week 2	The Perfect Aspect
Week 3	Scientific Voice (Passive)
Week 4	Logical Connectives & Cohesion
Week 5	Terminology & First Reading
Week 6	Deep Analysis
Week 7	Mid-term Exam
Week 8	Translation & Application
Week 9	Practical workshop on translation techniques (from and into Arabic)
Week 10	Identity & Culture
Week 11	English for Agriculture
Week 12	Debate & Argumentation
Week 13	Literature & Analysis
Week 14	Science & Business
Week 15	Media & Lifestyle

Week 16	Preparatory week before the final Exam
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Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	New Headway Plus/Beginner part1	Yes
Recommended Texts	Rapid Review of English Grammar 2020–2021	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.				



MODULE DESCRIPTION

Module Information				
Module Title	BIOCHEMICAL ANALYSIS		Module Delivery	
Module Type	Core learning activity		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	BIA2200			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UG11	Semester of Delivery		4

Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firmaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. MSc.
Module Tutor	N.A.	e-mail	N.A.
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	12/8/2025	Version Number	1.0

Relation with other Modules

Prerequisite module	BSS1050	Semester	2
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	6- To introduce students to the basic concepts of biochemical analysis and its relationship with analytical and physical chemistry. 7- To enable students to prepare solutions, perform simple titrations, and calculate concentrations. 8- To provide students with a simplified understanding of energy concepts, reaction rate, and the physical properties of solutions. 9- To train students to link theoretical aspects with practical laboratory applications. 10-
Module Learning Outcomes LOs	Upon completion of the course, the student will be able to: LO#1: Calculate the concentrations of different solutions and accurately prepare standard and diluted solutions. LO#2: Perform simple chemical titrations and correctly analyze the results. LO#3: Use basic measuring instruments such as the pH meter and the spectrophotometer. LO#4: Interpret the results of physical measurements (turbidity, conductivity, viscosity) and write a simplified practical report.

Indicative Contents	The guidance content includes the following: Guidance Content (Theoretical): Introducing the student to the basic principles of biochemical analysis and its role in understanding the chemical and physical properties of biological materials, with clarification of the importance of solution preparation, titrations, and spectrophotometric measurements in laboratory work, and linking these concepts to their general applications in the fields of food science and health. Providing simplified applications of biochemical analysis concepts such as concentration calculations, spectrophotometric measurements, and the measurement of some physical properties of solutions, while discussing the challenges faced by students in understanding these concepts and proposing practical educational methods that contribute to enhancing understanding and correct application inside the laboratory. Total hrs = 63 = SSWL - (Exam hrs) = 63-3= 60 (Time table 4 hrs x 15 weeks)
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Learning and Teaching Strategies

Strategies	6- Interactive lectures. 7- Classroom discussions. 8- Demonstration presentations. 9- Practical application in the laboratory. 10- Example-based learning. 11- Mini field visits (real or virtual).
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Student Workload (SWL)

الحمل الدراسي المنتظم للطالب خلال الفصل	63	الحمل الدراسي المنتظم للطالب أسبوعياً	4
الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	الحمل الدراسي غير المنتظم للطالب أسبوعياً	4
الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Quizzes	2	10% (10)	4 and 11	LO#1 and LO#2

Formative assessment	Assignments	2	10% (10)	2 and 13	LO#1 and LO#3
	Projects/ Practical	3	10% (10)	4, 8 and 12	All
	Report	1	10% (10)	14	LO#1, LO#2 and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	• Introduction to biochemical analysis: definition and importance. • Review of concentrations: molarity, normality, dilution.
Week 2	• Preparation of standard solutions. • Concept of analytical errors (accuracy and precision).
Week 3	• Fundamentals of titration: acid–base titration. • Color indicators.
Week 4	• Standardization: concept and calculation methods. • Simplified applications of titrations.
Week 5	• Thermodynamics: heat and energy in reactions. • Exothermic and endothermic reactions.
Week 6	• Gibbs free energy (ΔG) in a simplified manner: when is a reaction spontaneous? • Applied examples from biological reactions.
Week 7	Mid-term Exam
Week 8	• Acid–base equilibria. • Buffer solutions and their importance.
Week 9	Introduction to chemical kinetics: reaction rate and affecting factors.
Week 10	• Spectroscopic instruments: wavelengths and absorbance. • Beer–Lambert law in a simplified form.
Week 11	• Electrical conductivity of solutions. • Salts and ions in biological systems.
Week 12	• Turbidity: concept and measurement methods.
Week 13	• Emulsions: nature of emulsions and stability factors.
Week 14	• Viscosity: concept and measurement methods.
Week 15	• Comprehensive review: linking solutions, titrations, thermodynamics, kinetics, spectroscopy, turbidity, emulsions, and viscosity.
Week 16	Scientific visit

Delivery Plan (Weekly Practical Syllabus)

	Material Covered
Week 1	• Laboratory safety. • Introduction to glassware and preparation of a standard solution.
Week 2	• Concentration calculations and preparation of diluted solutions.
Week 3	• Acid–base titration using color indicators.
Week 4	• Acid–base titration using a pH meter.
Week 5	• Simplified thermal experiment: exothermic/endothermic reaction.
Week 6	• Complexometric titration (EDTA) for determination of a simple ion.
Week 7	• Preparation of a buffer solution and pH measurement.
Week 8	• Monitoring the rate of a simple reaction (decomposition of H_2O_2).
Week 9	• Use of a spectrophotometer to determine absorbance at a specific wavelength.

Week 10	• Measurement of electrical conductivity of NaCl solutions at different concentrations.
Week 11	• Measurement of turbidity in a suspended solution.
Week 12	• Preparation of a simple emulsion and study of its stability.
Week 13	• Measurement of viscosity of a sugar solution using a simple device.
Week 14	• Comprehensive final experiment: measurement of pH + turbidity + viscosity + emulsion.
Week 15	Final practical exam + self-assessment of the practical course

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	N.A.	-
Recommended Texts	Printed Lectures-BIOCHEMICAL ANALYSIS	Yes
Websites		

Grading Scheme

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

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



MODULE DESCRIPTION

Module Information

Module Title	COMPUTER SKILLS2	Module Delivery	
Module Type	Basic learning activities	☐ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	UOM2032		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	UGII	Semester of Delivery	4
Administering Department	SSWR1969, PLPR1966, HOLA1974, FORE1964, FOSC1965, FICR1973, ANPR1964, AGECE1979, AETT1979, AGME1986	College	AGFO1964
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboory Khaled Anwer Khaled ALKHALED wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboory@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D. MSc.
Module Tutor	N.A.	e-mail	N.A.
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/2/2026	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. Enable the student to learn about security and networks: types of networks, basic components of networks, basics of network security, understanding network threats, troubleshooting network errors. 2. Enable the student to learn about e-commerce: concepts of electronic banking services, including online banking services. 3. Enable the student to troubleshoot computer errors. 4. Enable the student to know artificial intelligence, artificial intelligence techniques and methods. 5. Provide the student with skills to deal with artificial intelligence in our daily lives.
Module Learning Outcomes	LO#1: Differentiate between various network types and components, and apply essential cybersecurity measures to protect systems against digital threats. LO#2: Diagnose technical faults in computer hardware and networks, and implement effective maintenance strategies to ensure operational continuity and workflow efficiency. LO#3: Utilize electronic banking services and Fintech applications efficiently, adhering to strict security and privacy standards during online transactions LO#4: Employ Artificial Intelligence techniques and applications to generate solutions for real-world problems and interact effectively with modern smart systems.
Indicative Contents	Indicative content includes the following. Security and Networks, will be covered. [SSWL=9 hrs] E-commerce: E-banking concepts will be covered [SSWL=6 hrs] The semester also includes Computer troubleshooting [SSWL=6 hrs] The semester also includes Introduction to Artificial Intelligence 9 AI in Our Daily Lives, Applications of AI, AI and Society, Ethical Challenges in AI, The Future of AI [SSWL=21 hrs] Total hrs = 47 = SSWL - (Exam hrs) = 47 - 2 = 45 hr (Time table hrs x 15 weeks)
Learning and Teaching Strategies	
Strategies	• Practical Sessions: Lectures should be regularly applied where students can apply theoretical knowledge directly. Practical exercises such as interactive simulations will enhance students' experience in network configuration. Practical workshops will be organized to allow students to deal with real faults and solve them in a real environment. • Project-Based Learning: Assign students applied projects that require the use of AI techniques to solve real-world agricultural problems. This encourages collaboration and critical thinking in problem solving. Provide real-world scenarios faced by businesses for students to practice troubleshooting. • Blended Learning: Integrate face-to-face learning with online resources and platforms. Use e-learning tools, such as educational videos, quizzes, and discussion forums, to provide additional support outside of classroom. Students can learn at their own pace while reinforcing what they

	have learned in class. Interactive lessons with explanatory videos on e-banking and how it works, with discussion sessions to enhance understanding. • Discussion and Peer Learning: Include group discussions and peer review activities. For example, after a practical lecture, we encourage students to present their solutions or projects to the class and provide feedback to each other. This promotes engagement, critical thinking, and communication skills. Extracurricular tools and applications Encourage students to use different AI tools outside the classroom to expand their skills and strengthen their applications.
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Student Workload (SWL)			
Structured SWL (h/sem)	47	Structured SWL (h/w)	3
Unstructured SWL (h/sem)	28	Unstructured SWL (h/w)	1.87
Total SWL (h/sem)	75		

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

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Lab 1: Security and Networks: What is a network? Types of networks, Basic components of networks
Week 2	Lab 2: Network Security: Network security basics, Understanding network threats.
Week 3	Lab 3: Network troubleshooting.
Week 4	Lab 4: E-commerce: E-banking concepts: including online banking: ATM and debit card services.
Week 5	Lab 5: Phone banking, SMS banking, e-alert, Mobile banking.
Week 6	Lab 6: Computer troubleshooting: Identify and resolve common hardware and software problems faced by computer users.
Week 7	Midterm Exam
Week 8	Lab 8: Basic troubleshooting techniques and tools to diagnose and resolve problems.
Week 9	Lab 9: Introduction to Artificial Intelligence: Definition of Artificial Intelligence, History of Artificial Intelligence.
Week 10	Lab 10: Artificial Intelligence techniques and methods, Challenges and ethical considerations.
Week 11	Lab 11: Artificial Intelligence in our daily lives: Artificial Intelligence in smartphones and virtual assistants such as Siri or Google Assistant.)
Week 12	Lab 12: Applications of Artificial Intelligence: Education, healthcare, finance, transportation, marketing and advertising.
Week 13	Lab 13: AI and Society: (How AI affects social, AI and international relations, AI and the future of humanity.)
Week 14	Lab 14: Ethical Challenges in AI :(AI ethics, privacy and surveillance, the impact of AI on the job market.)
Week 15	Lab 15: The Future of AI (Future trends in AI, recent research and emerging technologies.)
week 16	Preparing for final exams

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	1- Graham Brown, David Watson. "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020) 2- Alan Evans, Kendall Martin, Mary Anne Poatsy, .2 (2020) "Technology In Action Complete", 16th Edition Ahmed Banafa, "Introduction to Artificial Intelligence .3 (2024) (AI)", 1st Edition	Yes (Digital)
Recommended Texts	- -A Brief Overview of Networks, by Essam Sarhan Dhiab. - Information Security in Simple Language, by Dr. Khalid bin Sulaiman Al-Ghatbar and Dr. Eng. Mohammed bin Abdullah Al-Qahtani. - E-commerce, prepared by Jamal Qasim Hassan and Mahmoud Abdel Salam.	Yes (Digital)
Websites	- https://www.edlibre.com - https://eduhub21.com - https://albawaabh.com - https://www.mosoah.com	

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 is 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 DESCRIPTION

Module Information		
Module Title	Beneficial insects	Module Delivery
Module Type	Core	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical
Module Code	PE12180	
ECTS Credits	5	

SWL (hr/sem)	125		☐ Seminar	
Module Level	1	Semester of Delivery		4
Administering Department	BAGRPP73	College	Type College Code	
Module Leader	Firas Kadhim Aljuoori	e-mail	Firasaljuboori@uomosul.edu.iq	
Module Leader's Acad. Title	assistant professor	Module Leader's Qualification		Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail	
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	1/2/2026	Version Number		

Relation with other Modules

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1- Introduce the concept of beneficial insects and their agricultural and environmental importance. 2- Understand honeybee biology, social organization, and economic value. 3- Develop skills in honeybee colony management and seasonal care. 4- Identify honeybee products and apply proper methods for harvesting and utilization. 5- Diagnose honeybee diseases and pests and apply prevention and control methods. 6- Explain the role of honeybees and other insects in pollination and crop yield improvement. 7- Apply methods of honeybee reproduction and queen rearing. 8- Understand silkworm biology, rearing practices, and silk production. 9- Learn principles of biological control using predators and parasitoids. 10- Distinguish beneficial insects from agricultural pests in the field. 11- Build practical skills in field collection, observation, and evaluation. 12- Promote awareness of the role of beneficial insects in ecological balance and sustainable agriculture.
Module Learning Outcomes	LO#1 Understand the scientific and ecological principles of beneficial insects and their roles in agro-ecosystems. LO#2. Know honeybee biology, colony social organization, and roles of colony members. LO#3. Identify honeybee and silkworm diseases and pests, and relevant prevention and control measures. LO#4. Apply skills in apiary management, queen rearing, and natural and artificial reproduction. LO#5. Appreciate the roles of pollinators, predators, parasitoids, and scavenger insects in pollination, biological control, and sustainability.
Indicative Contents	The first four weeks focus on introducing honeybees in terms of their economic and environmental importance, common races, and social organization within the colony. The course then covers honeybee biology, life cycle, external and internal anatomy, and the roles of different colony members. Students learn the principles of establishing and managing an apiary, including essential tools, equipment, and seasonal care, with practical training in hive inspection. In addition, the course addresses honeybee products, their importance, and practical methods for harvesting and utilization. [SSWL=15 hrs].

	Weeks five to eight cover honeybee diseases and pests, including their identification, diagnosis, and methods of prevention and control. The course highlights the role of honeybees in pollination and their importance in increasing agricultural productivity, with field visits to observe pollinators. It also addresses natural and artificial methods of honeybee reproduction, such as swarming and colony division. In addition, students learn the principles and practical steps of queen rearing and artificial insemination through applied training. [SSWL=15 hrs] . Week nine focuses on introducing the silkworm and its economic importance. It covers the silkworm life cycle, rearing practices, and feeding methods, with practical training on cocoon identification, silk extraction, and prevention of common diseases.. [SSWL=10 hrs] Weeks ten, eleven, and twelve focus on the concepts and applications of biological control. These weeks cover the role of predatory and parasitic insects in controlling agricultural pests, including their types and mechanisms of predation and parasitism. The content also addresses biological control of weeds using insects, with practical training in field sampling, observation of feeding behavior, and evaluation of field effectiveness. [SSWL=10 hrs] Weeks thirteen and fourteen focus on pollinating insects and decomposer insects and their environmental roles. The content covers the concept of pollination, types of pollinating insects, and their importance in biodiversity and agricultural production, with field observation of pollination behavior. It also introduces scavenger and decomposer insects, their common examples, and their role in organic matter decomposition, soil fertility improvement, and ecological balance, supported by practical sampling and activity assessment. [SSWL=10 hrs] Total hrs = 63 = SSWL - (Exam hrs) = 63 = 63 hr (Time table hrs x 15 weeks)
Learning and Teaching Strategies	
Strategies	1- Interactive lecture 2- Brainstorming 3- Dialogue and discussion

	4-Field Training 5- Practical exercises 6- Field project 7- Self-education
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	2
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	2
Total SWL (h/sem)	200		

Module Evaluation

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

Delivery Plan (Weekly Syllabus)

	Material Covered
Week 1	Introduction to honeybees, including their economic and environmental importance, common races, and social organization within the colony.
Week 2	Honeybee biology, including the life cycle, external and internal anatomy, and the functions of workers, the queen, and drones.
Week 3	Honeybee colony management, including apiary establishment, tools and equipment, and seasonal feeding and care.
Week 4	Honeybee products, including honey, beeswax, royal jelly, pollen, propolis, and bee venom.
Week 5	Honeybee diseases and pests, including bacterial, fungal, and viral diseases, insect and non-insect pests, and methods of prevention and control.
Week 6	The role of honeybees in pollination, their importance in increasing agricultural productivity, and the management of honeybee colonies for pollination purposes.
Week 7	Methods of honeybee reproduction, including natural reproduction, swarming and its types, and artificial colony division.
Week 8	.Queen rearing and artificial insemination in honeybees
Week 9	Silkworms: introduction and economic importance, life cycle, rearing practices, silk production, and common diseases with methods of prevention.
Week 10	Predators: the concept of biological control, types of predatory insects, mechanisms of predation, use of predators in controlling agricultural pests, and applied examples from agricultural fields.

Week 11	Parasitoids: the concept of biological control, types of parasitic insects, mechanisms of parasitism, use of parasitoids in controlling agricultural pests, and applied examples from agricultural fields.
Week 12	Biological control of weeds, including weed-feeding insects, their types, and their importance.
Week 13	Pollinating insects: the concept of pollination, types of pollinating insects, their role in biodiversity, their impact on agricultural crops, and methods for their conservation.
Week 14	Scavenger and decomposer insects: definition, common examples, their role in organic matter decomposition, and their importance in soil fertility.
Week 15	General review and monthly examination.
Week 16	Preparatory week before the final Exam.

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Apiary visit to identify honeybee colonies and races.
Week 2	Laboratory dissection of honeybee colony members and identification of the main internal organs and structures.
Week 3	Identification of essential tools and equipment used in beekeeping and honeybee colony inspection.
Week 4	Practical application of methods for collecting honeybee products.
Week 5	Diagnosis of diseases and pests affecting honeybees.
Week 6	Apiary visit and identification of different types of pollinating insects.
Week 7	Methods of handling, hiving swarms, and artificial colony division.
Week 8	Practical application of queen rearing and artificial insemination methods.
Week 9	Silkworm stages, feeding and rearing practices, identification of cocoons, and silk extraction.
Week 10	Collection of predatory insects and their identification in comparison with agricultural pests.

Week 11	Parasitic insects, observation of parasitism, and applications of biological control.
Week 12	Field sample collection, observation of feeding behavior, and evaluation of field activity.
Week 13	Collection of pollinating insects, observation of pollination behavior, and evaluation of their field activity.
Week 14	Collection of scavenger insects, study of their role in decomposition, and their relationship to soil fertility.
Week 15	General review, final practical examination, and submission of reports.

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Beekeeping and Silkworms Book / Written by Dr. Louay Karim Al-Naji	
Recommended Texts	The bees of the world /Charles D. Michener	
Websites	https://www.google.com/search?q=%D9%83%D8%AA%D8%A8+%D8%AA%D8%B1%D8%A8%D9%8A%D8%A9+%D8%A7%D9%84%D9%86%D8%AD%D9%84&oq=%D9%83%D8%AA%D8%A8+%D8%AA%D8%B1%D8%A8%D9%8A%D8%A9+%D8%A7%D9%84%D9%86%D8%AD%D9%84&aqs=chrome..69i57j0i22i30l2j0i15i22i30l2.6551j0j15&sourceid=chrome&ie=UTF-8	

Grading Scheme

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

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54). The University has a policy NOT to do automatic rounding. (s) will be the

رئيس قسم الارشاد التربوي وفن التعلّم
أ.م.د. محمد باقر حمزة



رئيس اللجنة العلمية
أ.م.د. أحمد جواد طالب

Higher Education and Science

MODULE DESCRIPTION

Module Information				
Module Title	METHODS AND EXTENSION AIDS		Module Delivery	
Module Type	Core learning activity		☒ Theory ☐ Lecture ☒ T Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	MEA3580			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		4
Administering Department	AETT1979	College	AET1040	
Module Leader	wisam yako aziz massa	e-mail	wisam_yako@uomosul.edu.iq	
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification		Ph.D. MSc.
Module Tutor	N.A.	e-mail	N.A.	
Peer Reviewer Name	N.A.	e-mail	N.A.	
Scientific Committee Approval Date	1/2/2026	Version Number	1.0	

Relation with other Modules			
Prerequisite module	None	Semester	4
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	1- Developing the concept of agricultural extension methods and methods among students and highlighting their role in achieving agricultural extension goals. 2- Developing students' abilities to choose and employ appropriate guidance methods and aids according to the nature of the guidance message and the characteristics of the target audience. 3- Promoting positive trends towards the use of traditional and modern extension methods, including communication technologies and social media, in transmitting agricultural innovations. 4- Encouraging students to plan, implement and evaluate various extension activities, such as practical demonstrations, field days, trips, meetings and agricultural exhibitions, in a way that contributes to raising the efficiency of extension work and serving the agricultural community.

Module Learning Outcomes LOs	The student should be able to: LO#1: Defines the basic concepts related to agricultural extension methods, means, and aids, and explains their importance in achieving agricultural extension goals. LO#2: Determine the appropriate guidance methods and means according to the nature of the guidance message, the characteristics of the target audience, and the circumstances of the guidance situation. LO#3: Proposes modern methods and techniques for developing agricultural extension work, and employs contemporary means of communication and social media to disseminate agricultural innovations. LO#4: He assumes his professional and ethical responsibilities when planning and implementing extension activities, and promotes effective communication and service to the agricultural community through the rational use of various extension methods.
Indicative Contents	The guiding content includes the following: Theoretical: The theoretical content includes developing students' knowledge of agricultural extension methods, tools, and aids, introducing their concepts, classifications, and the principles of their selection and use in various extension situations. It also covers skills in employing individual, group, and mass communication methods, and implementing different extension activities such as field and home visits, practical demonstrations, field days, field trips, and extension meetings. Furthermore, it includes studying extension publications, radio and television programs, agricultural exhibitions, modern communication tools, and how to utilize information technology and social media to disseminate agricultural innovations and improve the efficiency and effectiveness of agricultural extension work. Laboratory: The practical component involves training students in selecting and using appropriate extension tools and aids, designing some extension publications such as posters, brochures, and leaflets, and using audiovisual aids and modern communication technologies in preparing extension messages. It also includes conducting field visits for practical demonstrations and field days, training on organizing trips and guidance meetings, and preparing reports on guidance activities and methods, which contributes to developing students' practical skills and raising their efficiency in planning, implementing and evaluating agricultural guidance programs. conducting reviews and laboratory experiments to recycle some solid, liquid and gaseous waste Total hrs = 63 = SSWL - (Exam hrs) = 63-3= 60 (Time table hrs x 15 weeks)

Learning and Teaching Strategies

Strategies	66. Interactive lecture, Brainstorming 67. Dialogue and discussion 68. Assigning reports 69. Quizzes 70. Show examples for writing scientific reports in the correct formats.
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4

Total SWL (h/sem)	125
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Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (10)	4,,10 and 12	LO#1and LO#2
	Assignments	2	10% (10)	2, and 13	LO#1 andLO#3
	Projects/ lab	2	5% (10)	8 and 12	All
	Report	1	10% (10)	14	LO#1, LO#2and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Extension Methods, The Concept of Extension Methods, Extension Tools and Aids, Classification of Extension Methods and Aids
Week 2	Selection of Extension Methods and Aids, Methods of Individual Communication, Field and Home Visits
Week 3	Office Visits, Telephone Communications, Personal Letters, Advantages and Disadvantages
Week 4	Informal Individual Communication, Group Extension Methods, Types of Group Methods, Shortcomings of Group Methods
Week 5	Practical Demonstration, The Concept of Practical Demonstration, Demonstrating the Method or Practice
Week 6	Demonstrating the Outcome, Comparison Between Practical Demonstration by Observation and Demonstration by Presenting Results
Week 7	Mid exam
Week 8	Field Day, The Concept of a Field Day, Types of Seasonal and Annual Field Days Midterm Exam
Week 9	Excursion Trips, The Concept of Excursion Trips, Advantages and Disadvantages Excursion Meetings, Lectures, Sessions, Seminars, Workshops, Debates, Rural Theater

Week 10	Mass Extension Methods, The Concept of Mass Extension Methods
Week 11	Types of Mass Extension Methods Advancements and Disadvantages Excursion Publications
Week 12	The Concept of Extension Publications, Light Pamphlets, Technical Pamphlets Guidance bulletin, newsletter, report magazine
Week 13	Newspaper articles, the concept of newspapers, advantages and disadvantages of newspapers Posters, types of posters Periodic letters
Week 14	Radio guidance programs, efficiency and effectiveness of guidance programs Television guidance programs, listening and viewing programs
Week 15	Agricultural exhibitions, the concept, benefits of exhibitions, the agricultural museum
Week 16	Preparatory week before the final

Delivery Plan (Weekly LAB Syllabus)	
ing modern technology and discussing the most important means of transferring and adopting it by :farmers, as well as the obstacles and treatments that ensure adoption	
	Material Covered
Week 1	Conditions to consider when choosing agricultural extension methods and tools:
Week 2	The concept of aids, the importance of aids in the extension process
Week 3	Conditions for using extension aids and tools, social media as a modern extension technique
Week 4	Audio-visual extension aids
Week 5	Still images, concept, types of still images
Week 6	Practical demonstration, field visit to a village in Nineveh Governorate to observe agricultural demonstrations
Week 7	Midterm Exam
Week 8	Field visit on Field Day to learn about the importance of the day for farmers and the importance of agricultural extension work
Week 9	Steps for implementing extension trips
Week 10	The mechanism of extension trips and their effectiveness
Week 11	Steps for conducting extension meetings, how to choose meeting dates

	Public extension methods: radio, television, internet
Week 12	How to design extension publications
Week 13	How to design extension brochures, newspapers, and posters
Week 14	Discussion of reports related to aids and tools
Week 15	Extension campaigns, the educational benefits of extension campaigns

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Environmental Economics 2022IMustafa Youssef Kafi Book	YES
Recommended Texts	Agricultural Waste Treatment Engineering 2000, Kingdom of Saudi Arabia, King Saud University, College of Agricultural Engineering.	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.



MODULE DESCRIPTION

Module Information

Module Information					
Module Title	AGRICULTURAL PRODUCTION MECHANIZATION TECHNIQUES		Module Delivery		
Module Type	Core		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar		
Module Code	APT2130				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level		UGII	Semester of Delivery		4
Administering Department		AGME1986	College	AGFO1964	
Module Leader	Yousif Yakoub Hilal		e-mail	yousif.yakoub@uomosul.edu.iq	
Module Leader's Acad. Title		Assistant Professor	Module Leader's Qualification		Ph.D.
Module Tutor	N.A.		e-mail	N.A.	
Peer Reviewer Name		N.A.	e-mail	N.A.	
Scientific Committee Approval Date		01/02/2026	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-Teaching students the fundamentals of agricultural machinery and equipment and their applications in the agricultural sector. 2-Practically applying these fundamentals in various agricultural fields.
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	3-Preparing advanced personnel in this field who can utilize these tools in different agricultural sectors. 4-Understanding the theories behind the design and operation of specialized agricultural equipment, as well as maintenance methods to ensure the sustainability of agricultural operations. 5-Keeping up with the rapid advancements in the agricultural sector to meet local market demands and export surplus production to global markets.
Module Learning Outcomes	LO#1: Technical and Operational Efficiency of Machinery Understanding the operating principles of machinery, managing and operating them efficiently in the field, and acquiring the ability to perform maintenance and repairs. LO#2: Plant Production and Harvesting Technologies Focusing on the "crop life cycle," starting from the use of modern machinery for seeding and crop care, through to harvesting operations, while minimizing quantitative and qualitative losses. LO#3: Resource Management and Agricultural Expansion Relating to strategic planning, which involves land reclamation for agricultural expansion and the rationalization of water resources using modern irrigation systems. LO#4: Entrepreneurship in Agricultural Projects Aiming to enable students to transform theoretical knowledge into commercial application by establishing and managing small-scale production projects (plant or animal).
Indicative Contents	Introduction to Agricultural Tractors: Definition and Classification Agricultural tractors serve as the primary source of power on farms, used for various agricultural operations such as towing and hauling equipment. They are classified based on their size, horsepower, and the type of tasks they perform, including wheeled and tracked tractors. Tractor Engines and Farm Power Sources Agricultural tractors rely on internal combustion engines powered by diesel or gasoline. Other power sources on farms include electricity, solar energy, and mechanical power derived from animals. Engine Operation: Four-Stroke and Two-Stroke Cycles Engines operate using either a four-stroke cycle (intake, compression, power, exhaust) or a two-stroke cycle, with the choice affecting fuel efficiency and overall engine performance. Power Transmission Systems in Agricultural Tractors Power is transmitted from the engine to the wheels or equipment through components such as the gearbox (manual or automatic), clutch, and hydraulic transmission systems, allowing for precise control of speed and power. Ground Contact Mechanisms, Hydraulic System, and Power Take-Off (PTO) Ground contact mechanisms include wheels or tracks to ensure stability and traction. The hydraulic system is used for raising and lowering implements, while the PTO drives mechanical attachments. Primary Soil Preparation Equipment This category includes various plows such as the moldboard plow, chisel plow, disc

	plow, vertical disc plow, and rotary plow, all designed to break up and turn the soil, improving aeration and preparing it for planting. Secondary and Specialized Soil Preparation Equipment Equipment such as harrows and leveling tools are used after plowing to refine the soil surface and optimize growing conditions. Other tools include subsoilers, cultivators, furrow openers, and undercut cultivators. Seeding Equipment Seeding machinery includes conventional and precision seeders that ensure uniform seed distribution at the proper depth for optimal germination. Planting and Transplanting Equipment These machines are used for planting seedlings and crops that require systematic placement, such as vegetables and field crops. Fertilization Equipment This includes manure spreaders and chemical fertilizer applicators, which help distribute nutrients efficiently across fields. Sprinkler Irrigation Equipment Sprinkler irrigation systems, either stationary or mobile, deliver water evenly to crops, enhancing water use efficiency. Drip Irrigation Systems and Pumps Drip irrigation systems provide a slow and steady water supply directly to plant roots through perforated pipes, while pumps transfer water from various sources to agricultural fields. Pest and Fire Control Equipment This category includes sprayers and dusters used to combat agricultural pests and diseases, along with fire control equipment for fields and forests. Grain Harvesting and Fruit Picking Equipment This includes combine harvesters and their functional units, which are essential for efficient harvesting operations. Post-Harvest Equipment post-harvest operations involve drying, sorting, storage, and packaging systems designed to maintain crop quality and minimize losses before marketing.
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Learning and Teaching Strategies

Strategies	Quizzes Reports Homework Discussion and solving exercises within the lecture, student interaction.
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Student Workload (SWL)

Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation

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

Delivery Plan (Weekly Syllabus)

	Material Covered
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Week 1	Introduction to Agricultural Tractors: Definition, Classification, and Power Sources Used on Farms, Agricultural Tractor Engines and Power Sources.
Week 2	Engine Operation Mechanism: Four-Stroke and Two-Stroke Cycles
Week 3	Power Transmission and Drive Systems in Agricultural Tractors
Week 4	Ground Engagement Systems, Hydraulic System, and Power Take-Off (PTO) Shaft
Week 5	Primary Soil Preparation Equipment
Week 6	Secondary and Specialized Soil Preparation Equipment
Week 7	Seeding Equipment
Week 8	Planting and Transplanting Equipment
Week 9	Fertilization Equipment
Week 10	Sprinkler Irrigation Equipment and Pumps
Week 11	Drip Irrigation Equipment
Week 12	Weed, Pest and Fire Control Equipment
Week 13	Grain Harvesting and Fruit Picking Equipment
Week 14	Mechanization of animal farm
Week 15	Final Examination

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	Components and Assembly of Internal Combustion Engines
Week 2	Training on Operating Agricultural Tractors
Week 3	Timing System and Fuel System
Week 4	Cooling System and Lubrication System
Week 5	Field Training on Equipment Usage
Week 6	Field Training on Equipment Usage
Week 7	Field Training on Equipment Usage

Week8	Field Training on Equipment Usage
Week9	Field Training on Equipment Usage
Week10	Field Training on Equipment Usage
Week11	Field Training on Equipment Usage
Week12	Field Training on Equipment Usage
Week13	Field Training on Equipment Usage
Week14	Field Training on Equipment Usage
Week15	Final Examination

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	- Agricultural Machinery and Equipment, authored by Dr. Yassin Hashim Al-Tahan and Dr. Mohammed Jasim Al-Naama. Mechanization of animal farm, authored by Dr. Mohammed Jasim Al-Naama	Yes
Recommended Texts	- CIGR Handbook of Agricultural Engineering. Vol., 1, 2, 3, 4, 5. American Society of Agricultural Engineers. USA	NO
Websites	https://asabe.org/ https://www.fao.org/home/ar	

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 DESCRIPTION

Module Information

Module Title	AGRICULTURAL WASTE TREATMENT ENGINEERING			Module Delivery	
Module Type	Core learning activity			☒ Theory ☐ Lecture ☒ T Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	AWE2210				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	UGII		Semester of Delivery		4
Administering Department	SSWR1969, FORE1964,	PLPR1966, FOSC1965,	HOLA1974, FICR1973,	College	AGFO1964

	ANPR1964, AGECE1979, AETT1979, AGME1986		
Module Leader	zwaid fathiy abd Omar Dheyaa Mohammed Asmaa Mohammed Adil Moyassar Mohammed Aziz Yousif Yakoub Hilal Taha Mohammed Taki Firas Kadhim Dawood Aljuboori Khaled Anwer Khaled wisam yako aziz masso Sumood Husain Ai Al-Hadedy	e-mail	zu-kh1985@uomosul.edu.iq dr.omaralmallah@uomosul.edu.iq asmaama@uomosul.edu.iq moyassar_aziz@uomosul.edu.iq Yousif.Yakoub@uomosul.edu.iq tahataqi@uomosul.edu.iq firasaljuboori@uomosul.edu.iq khalid.anwar31@uomosul.edu.iq wisam_yako@uomosul.edu.iq sumod_husain@uomosul.edu.iq
Module Leader's Acad. Title	Professor Assistant Professor	Module Leader's Qualification	Ph.D. MSc.
Module Tutor	N.A.	e-mail	N.A.
Peer Reviewer Name	N.A.	e-mail	N.A.
Scientific Committee Approval Date	1/2/2026	Version Number	1.0

Relation with other Modules

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

Module Aims, Learning Outcomes and Indicative Contents

Module Objectives	1-Developing the concept of agricultural waste treatment engineering 2- Capacity development on creating clean, environmentally friendly, recycled projects 3- Promoting the positive attitudes of individuals towards agricultural waste treatment engineering and the use of modern technologies in treatment 4- Encouraging work on recycling and treating agricultural waste and using organic fertilizers
Module Learning Outcomes LOs	The student should be able to: LO#1: Knows the general concepts of agricultural waste treatment engineering LO#2: Determines appropriate means and methods for recycling and treating environmentally harmless agricultural waste LO#3: It proposes modern ideas and capabilities for clean and environmentally friendly projects in reprocessing agricultural waste LO#4: The student has ethical responsibilities in the production of new and recycled resources
Indicative Contents	The guiding content includes the following: Theoretical Developing agricultural waste treatment engineering skills and identifying appropriate means for treating solid, liquid and gaseous waste, as well as identifying the types of agricultural waste and how to employ them in creating clean, environmentally friendly projects to develop work in the field of agricultural engineering sciences and methods of using them efficiently to develop agricultural production and recycle and treat environmentally non-harmful waste as an economic opportunity lab

	The most important modern means of obtaining and benefiting from recycling agricultural waste will be addressed by conducting reviews and laboratory experiments to recycle some solid, liquid and gaseous waste Total hrs = 63 = SSWL - (Exam hrs) = 63-3= 60 (Time table hrs x 15 weeks)
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Learning and Teaching Strategies	
Strategies	71. Interactive lecture, Brainstorming 72. Dialogue and discussion 73. Assigning reports 74. Quizzes 75. Show examples for writing scientific reports in the correct formats.

Student Workload (SWL)			
Structured SWL (h/sem)	63	Structured SWL (h/w)	4
Unstructured SWL (h/sem)	62	Unstructured SWL (h/w)	4
Total SWL (h/sem)	125		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	15% (10)	4,, 10 and 12	LO#1and LO#2
	Assignments	2	10% (10)	2, and 13	LO#1 andLO#3
	Projects/ lab	2	5% (10)	8 and 12	All
	Report	1	10% (10)	14	LO#1, LO#2and LO#4
Summative assessment	Midterm Exam	3hr	10% (10)	7	LO#1, LO#2 and LO#3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	The concept of agricultural waste treatment engineering and its importan
Week 2	Types of solid, liquid and gaseous agricultural waste
Week 3	Agricultural waste treatment objectives as an economic opportunity

Week 4	Classification of agricultural waste according to its components and composition
Week 5	Effects of agricultural waste on the environmental economy
Week 6	Agricultural waste sources .
Week 7	Mid exam
Week 8	agro-environmental management, policy and agro-environmental planning .
Week 9	Ways to benefit from organic agricultural waste
Week 10	Agricultural ecological footprint and its impacts.
Week 11	Waste disposal systems (Waste handling methods)
Week 12	Causes of the spread of hazardous toxic industrial waste, non-toxic waste and radioactive waste
Week 13	Production of organic fertilizer, biogas and biogas fertilizer
Week 14	Reducing greenhouse gas emissions and green nitrogen uses
Week 15	Animal feed production, use of liquid feed, solid molasses blocks and roughage grinding (mechanical processing) .
Week 16	Preparatory week before the final

Delivery Plan (Weekly LAB Syllabus)	
ing modern technology and discussing the most important means of transferring and adopting it by :farmers, as well as the obstacles and treatments that ensure adoption	
	Material Covered
Week 1	Organic fertilizer (improving the organic fertilizer properties of poultry manure by adding biochar)
Week 2	Biogas potential as a sustainable new energy source for rural livelihoods (green hydrogen and gas uses and greenhouse gas mitigation)
Week 3	Practical experiments to benefit from heat exchangers in drying fish farm waste and treating and recycling chicken litter .
Week 4	Methane production by anaerobic fermentation from cattle manure and poultry droppings under laboratory conditions.
Week 5	Hydroponics: Growing plants in a water solution instead of soil, which reduces water use.
Week 6	Some natural properties of apricot kernels and their recycling.
Week 7	Midterm Exam
Week 8	Agricultural Robots: The use of robots to perform tasks such as planting and harvesting.
Week 9	Utilization of heat exchangers in drying fish farm waste.
Week 10	Design and manufacture of a unit for cooking meals from poultry waste as a non-traditional feed
Week 11	Improving the properties of organic fertilizer of poultry waste by adding biochar
Week 12	Crushing of roughage (mechanical treatment of waste with urea solution, ammonia gas and silage)
Week 13	Organic fertilizer production as a successful, clean and environmentally friendly project
Week 14	Organic Farming: Agricultural techniques that rely on the use of natural materials instead of chemicals.

Week 15	Organic Fertilizer Production Systems Andrew's Method Classification of Organic Fertilizer Production Systems and Production Stages .
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Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Environmental Economics 2022I Mustafa Youssef Kafi Book	YES
Recommended Texts	Agricultural Waste Treatment Engineering 2000, Kingdom of Saudi Arabia, King Saud University, College of Agricultural Engineering.	NO
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 - 100	Outstanding Performance
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