

MODULE DESCRIPTION FORM

Module Information			
Module Title	Agricultural Informatics		Module Delivery
Module Type	Core learning activity		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input checked="" type="checkbox"/> Seminar
Module Code	AGI1080		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
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	Hussain abed hammod	e-mail	hu_hammod@uomosul.edu.iq
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 LO#4. Explore Future Innovations in Agricultural Informatics
Indicative Contents المحتويات الإرشادية	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	<ol style="list-style-type: none"> 1. Interactive lecture, Brainstorming 2. Dialogue and discussion 3. Assigning reports 4. Quizzes 5. Show examples of writing scientific reports in the correct format.
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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)	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)

	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
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/Seminar Syllabus)

	Material Covered
Week 1	Discussion on Agricultural Informatics Applications in Iraq.
Week 2	Designing a Simple Database for a Virtual Farm

Delivery Plan (Weekly Projects/Seminar Syllabus)

	Material Covered
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	<ul style="list-style-type: none"> Choudhury, A., Biswas, A., Prateek, M., & Chakraborty, A. (2021). <i>Agricultural Informatics: Automation Using IoT and Machine Learning</i>. Wiley-Scrivener. 	No
Recommended Texts	<ul style="list-style-type: none"> Pierce, F. J., & Zhang, Q. (2016). <i>Agricultural Automation: Fundamentals and Practices</i>. CRC Press. Shamtsyan, M., Pasetti, M., & Beskopylny, A. (2021). <i>Robotics, Machinery and Engineering Technology for Precision Agriculture</i>. Springer. Li, D. (2016). <i>Computer and Computing Technologies in Agriculture: Proceedings of CCTA</i>. Springer. Satapathy, S., Mishra, D., Vargas, A. R., & El-Bendary, N. (2022). <i>Innovation in Agriculture with IoT and AI</i>. Springer. Singh, R., Gehlot, A., Singh, B., & Choudhury, S. (2022). <i>Internet of Things (IoT) Enabled Automation in Agriculture</i>. CRC Press. 	No
Websites		

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 at decimal points above or below 0.5 will be rounded to the nearest full mark (e.g., 54.5 to 55, 54.4 to 54). The University does NOT condone "near-pass fails"; adjustments to marks will only involve the automatic rounding stated above.



أ.م.د. يوسف يعقوب هلال
رئيس قسم المكنائن والآلات الزراعية

رئيس اللجنة العلمية
أ.د. محمد احمد مراد