MODULE DESCRIPTION FORM

Module Information					
Module Title	**AGRICULTRAL ENGINEERING TECHNIQUES TRANSFER**			**Module Delivery**	
Module Type	**Core learning activity**			☒**Theory** ☐ **Lecture** ☐ **Lab** ☐**Tutorial** ☒**Practical** ☐**Seminar**	
Module Code	**AET1040-AM**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	UGI	**Semester of Delivery**		1	
Administering Department	AGME1986	**College**	**AGFO1964**		
Module Leader	Asist. Prof. Dr. 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	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 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. Theoretical 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. Practical application 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	1. Interactive lecture, Brainstorming 2. Dialogue and discussion 3. Assigning reports 4. Quizzes 5. 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**	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 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	Yes
Websites		

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

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

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