Course Description Form

1. Course Name:
Agricultural Machinery
2. Course Code:
AGMA243
3. Semester / Year:
First fall semester/second stage/2023−2024
4. Description Preparation Date:
1/9/2023
5. Available Attendance Forms:
in−person
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hours (2 theoretical + 3 practical / 3.5 units
7. Course administrator's name (mention all, if more than one name)
Name: Ghazwan Ahmed Dahham Name: Muhammad Nazim Abdullah Email: ghazwanagr@uomosul.edu.iq
8. Course Objectives
. Identify the types and parts of agricultural equipment. . Clarifying the basics and principles of engineering sciences and their applications in various agricultural field . Discussing every type of agricultural equipment and machinery for the production of agricultural crops (in te of structure and function), starting from plowing the soil and preparing the seedbed, passing through the stages serving the growing crop, ending with harvesting operations and the subsequent processes through whic these agricultural products are prepared, whether for consumption or storage. . Conducting the necessary adjustments for agricultural machines in order to obtain the optimal use of those machines in order to reach the intended use of those machines. . The ability to maintain, maintain and repair agricultural equipment. . The ability to disassemble and install these machines. . Ability to manage agricultural equipment in the field. . The ability to connect machines to the agricultural puller and carry out organizing and calibrating operation them in a way that suits the agricultural operation required to be performed with the agricultural machine.
9. Teaching and Learning Strategies
- Interactive lecture - Brainstorming - Dialogue and discussion - Field Training - Practical exercises - Field project - Self-education
10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation m	ethoc
1	2 Theoretical	c3: The student shows the initial soil preparation equipment (rolling plow and excavator). The student acquires knowledge and concepts related to soil preparation equipment	Primary soil preparation equipment (rolling plow and excavator).	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exa	n 1, fi
	3 Practical	b1: Calculating field productivity of soil preparation equipment The student should be able to calculate the theoretical and actual productivity and field efficiency of tillage equipment and machines	Mathematical relations for calculating theoretical productivity, actual productivity, and field efficiency of plows	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practica	test1
2	2 Theoretical	a4: The student shows the primary soil preparation equipment (dump disc plow, vertical disc plow, and rotary plow). The student should be able to know how to manage agricultural equipment in the field	Primary soil preparation equipment (disc plow, vertical disc plow, and rotary plow).	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exa	1, fi

	3 Practical	b2: Clamping and connecting the roll plow, clamping and connecting the tipping disc plow The student should be able to identify problems that reduce the efficiency of the plowing process	Methods of netting connecting the agricult tug to the plows	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practical est1
3	2 Theoretical	c3: The student shows the secondary soil preparation equipment The student acquires knowledge and concepts related to secondary equipment	Secondary soil preparation equipment	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, fi exam
	3 Practical	b1: Excavator plow clamp, vertical disc plow clamp and clamp The student should be able to choose the appropriate plowing method according to the conditions and nature of the field to be plowed	Methods of netting and connecting agricultural pullers to non-dump plows	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practical est1
4	2 Theoretical	c2: The student shows the special soil preparation equipment The student acquires knowledge and concepts related to special equipment	Special soil preparation equipment	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exar 1, exam
	3 Practical	b1: Calculate the pulling force and pulling capacity of tillage equipment	Mathematical relations for calculating the pulling force and pulling	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practica test1

		The student should be able to disassemble and install agricultural machinery	capacity of plows			
5	2 Theoretical	C4: The student explains the withdrawal requirements for soil preparation equipment. The student acquires knowledge and concepts related to planning equipment	Drag requirements for soil conditioning equipment.	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exa exam	1,
	3 Practical	b3: The marching groups to combat jungles between agricultural lines The student should be able to organize and connect agricultural machinery to the agricultural puller	Regulations for hoeing equipment	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practic l test1	
6	2 Theoretical	c4: The student identifies irrigation equipment. The student acquires knowledge and concepts related to irrigation equipment	Irrigation equipment.	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam exam	1, fin
	3 Practical	b1: Calculate the horsepower required for the irrigation pump The student should be	Use mathematical relationships to calculate pump discharge, calculate pump efficiency, and	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practical	est1

		able to calculate the discharge and efficiency of pumps	calculate pump horsepower		
7	2 Theoretical	c3: The student shows the seeding and agricultural equipment The student should be able to know seed and agricultural equipment	Seeding and farming equipment	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam , final
	3 Practical	b4: Laboratory and field organization of grain seeds The student should be able to organize grain seeds	Organizing and calculating the seed rate	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practical est1
8	2 Theoretical	C3: Shows the main parts of the hoeing equipment between the lines of planted plants The student acquires knowledge and concepts related to mechanical control equipment	Hoeing equipment between lines of planted plants	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment o duty, discussions
	3 Practical	b4: Mathematical relations for calculating the seed rate per hectare The student should be able to organize grain seeds	Using mathematical relationships to calculate the seed rate per hectare	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of uty, discussions
9	2 Theoretical	a2: The student shows the fertilization equipment	Fertilization equipment	Interactive lecture, brainstorming, dialogue and discussion, field training,	short exams, assignment o duty, discussions

		The student acquires knowledge and concepts related to animal fertilization equipment The student acquires knowledge and concepts related to chemical fertilization equipment		practical exercises, and self-learning	
	3 Practical	b1: Calculating the amount of fertilizer needed per unit area The student should be able to organize fertilization equipment	Organizing and calculating the fertilization rate	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
10	2 Theoretical	C4: Explains chemical control equipment (sprayers). The student acquires knowledge and concepts related to spraying equipment for chemical control	Chemical control equipment (sprays).	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
	3 Practical	b1: Calculating the amount of pesticide needed per unit area The student should be able to organize chemical control sprays	Organizing and calculating the pesticide agent	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
11	2 Theoretical	a2: Scientific visit The student should be able to know how to manage agricultural	Scientific visit	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions

		equipment in the field			
	3 Practical	b1: Scientific visit The student should be able to monitor safety conditions when working on agricultural equipment and machinery	Scientific visit	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
12	2 Theoretical	a2: Knows chemical control equipment (disinfectants) The student acquires knowledge and concepts related to spraying equipment for chemical control	Chemical control equipment (disinfectants).	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
	3 Practical	b3: Daily, weekly and end-of-season maintenance of soil preparation equipment The student should be able to determine the appropriate time to conduct pest control operations	Maintaining and maintaining soil preparation equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
13	2 Theoretical	c3: The student knows the methods of plowing using inverter and non-inverter plows The student acquires knowledge and concepts related to equipment for serving the growing crop	Methods of plowing with plows	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
	3 Practical	b1: Daily, weekly and end-of-season maintenance of seed and	Maintaining and maintaining seed and agricultural equipment	Interactive lecture, brainstorming, dialogue and discussion, field	short exams, assignment of duty, discussions

		agricultural equipment The student should be able to apply maintenance and storage rules for agricultural equipment and machinery		training, practical exercises, and self-learning	
14	2 Theoretical	a2: The student knows harvesting equipment The student should be able to know harvesting equipment	Harvesting equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
	3 Practical	b2: Daily, weekly and end-of-season maintenance of harvesting equipment The student should be able to apply maintenance and storage rules for harvesting equipment	Maintaining and maintaining harvesting equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
15	2 Theoretical	c3: The student explains the most important symptoms resulting during harvesting and the necessary solutions to them through the special calibrations of the harvester units. The student should be able to identify the symptoms resulting during the harvesting process in all harvester units	The most important symptoms resulting during harvesting and the necessary solutions for them through the special calibrations of harvester units.	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
	3 Practical	b3: Safety procedures in the use of	Instructions and safety procedures for using	Interactive lecture, brainstorming, dialogue and	short exams, assignment of duty,

		agricultural equipment and machinery The student must be able to operate harvesting equipment	agricultural equipment and machinery	discussion, field training, practical exercises, and self-learning	discussions

11. Course Evaluation

	Evaluation methods	Evaluation date (week)	Grade	Relative weight %
1	Report 1	Week Four	2.5	2.5
2	Report 2	Week Five 2.5	2.5	2.5
3	Short test (1) Quiz	Week Six	2	2
4	Short Test (2) Quiz	Week Fourteen	2	2
5	Short Test (3) Quiz	Week Fifteen	1	1
6	Semester test (1)	sixth week	7.5	7.5
7	Semester test (2	the eleventh week	7.5	7.5
8	final theoretical exam final semester exams 40 40	final semester exams	40	40
9	Practical field project	week fifteen	5	5
10	Field evaluation	weeks three and five	2	2
11	short practical tests (1) Quiz	the first week	1	1
12	short practical tests (2) Quiz	Week Four	0.5	0.5
13	Short practical test (3) Quiz	Week Fourteen	1	1
14	Direct drawings and homework	weeks 6, 8, 9, 10, 11, 12, and 13	5.5	5.5
15	Final practical exams	Final semester exams	20	20
Total	100		100%	100%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Soil preparation equipment, written by Dr. Aziz Ramo Al-Banna. 2- Agricultural machines and machinery, written by Dr. Yassin Hashem Al-Tahan and Dr. Muhammad Jassim Al-Naama. 3- Field crop mechanization equipment, written by Mr. Lotfi Hussein and Dr. Abdul Salam Mahmoud.
Main references (sources)	Agricultural mechanization (pullers and agricultural machines), written by Ahmed Al-Rai Imam Suleiman and Sami Muhammad Younis.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

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