Course Description Form

1. Name of the course:
Mechanization of Field Crops
2.Course code:
MEFC358
3.Semester/year:
First semester (fall)/2024-2025
4. Description Preparation Date:
1/10/2024
5. Available Attendance Forms:
Combined (Attendance + distance education)
6. Number of Credit Hours (Total) / Number of Units (Total)
75 hours (30 theoretical hours + 45 practical hours) / 3.5 units
7. Course administrator's name (mention all, if more than one name)
Name :Mahmoud Hasan Rafik E.mail: Mahmoud.h.r@uomosul.edu.iq Name : Othman Muayyad Muhammad Tawfiq E.mail: Othman.mmt@uomosul.edu.iq
8.Course Objectives
Objectives of the study subject • Identify the types and parts of agricultural equipment in general and agricultural pest control machines and equipment in particular. • Clarifying the basics and principles of engineering sciences and their applications in agricultural fields related to pest control. •Discussing every type of agricultural equipment and machinery for combating agricultural crop pests (in terms of structure and function), starting with the control before and during plowing the soil and preparing the seedbed, passing through the stages of serving the growing crop and ending with the harvesting operations and the subsequent processes through which these products are prepared. Agricultural crops, whether for consumption or storage. Conducting the necessary adjustments for agricultural control machines and equipment in order to obtain optimal use in order to achieve the purpose of using these machines. • The ability to maintain, maintain and repair agricultural control equipment. • The ability to dismantle, install and repair these machines. • The ability to manage agricultural control equipment in the field • The ability to connect machines to the agricultural puller and carry out organizing and calibrating operations for them in a way that suits the agricultural control required to be performed with the agricultural machine.
9. Teaching and Learning Strategies
The strategy - Interactive lecture - Brainstorming - Dialogue and discussion - Field Training

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical	a6: The student gets acquainted with the primary soil preparation equipment (digger plow - excavator plow). The student acquires knowledge and concepts related to soil preparation equipment	Initial soil preparation equipment (digger plow - excavator plow)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam

	3 Practical	a6: The student gets acquainted with the primary soil preparation equipment (digger plow - excavator plow). The student should be able to know how to manage agricultural equipment in the field	Mechanism of operation of primary soil preparation equipment (digger plow-dump plow)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
2	2 Theoretical	a7: Shows the student the basic soil preparation equipment (Disc plow and disc plow Vertical and rotary plow) The student should be able to know how to manage agricultural equipment in the field	Primary soil preparation equipment (dump disc plow - vertical disc plow - rotary plow)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	a7: The student shows the primary soil preparation equipment (dump disc plow - vertical disc plow – rotary plow)	The mechanism of operation of primary soil preparation equipment (dump disc plow - vertical disc plow - rotary plow)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
3	2 Theoretical	a23: The student explains the organizations Operational use of tillage equipment (dump disc plow, vertical disc plow, rotary plow) The student acquires knowledge and concepts Related to how it is organized and operated Tillage machines	Operating regulations for tillage equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	a23: The student explains the parts The main component of each plow is the primary tillage equipment (plough Disc Dumper-vertical disc plow-rotary plow) The student acquires knowledge and concepts Related to how it is organized and operated Primary tillage equipment	Working mechanism and operating regulations for prima tillage equipment (fla disc plow - vertical d plow - rotary plow)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
4	2 Theoretical	b5: The student is familiar with secondary soil preparation equipment (smoothing equipment) The student acquires knowledge and concepts	Secondary soil preparation equipment (softening equipment)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam

		Related to secondary equipment			
	3 Practical	b5: The student is familiar with secondary soil preparation equipment (smoothing equipment) The student acquires knowledge and concepts Related to secondary equipment	Secondary soil preparation equipment (softening equipment)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
5	2 Theoretical	b46: The student masters special soil preparation equipment The student acquires knowledge and concepts related to special equipment	Special soil preparation equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	b13: Calculates the pulling force and pulling capacity of tillage equipment. The student should be able to disassemble and install agricultural machinery	Special soil preparation equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
6	2 Theoretical	a6: The student learns about leveling equipment and modifying the soil surface The student acquires knowledge and concepts related to grading and soil surface modification equipment	Leveling and soil surface modification equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	a6: The student learns about leveling equipment and modifying the soil surface The student should be able to know the parts and components of grading and soil surface modification equipment	The mechanism of operation of leveling and soil surface modification equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
7	2 Theoretical	a7: The student shows the seeding equipment And agriculture The student should be able to know Seeding and farming equipment	Agriculture and seeding equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	4b: Laboratory and field organization of grain seeds. The student should be able to organize grain seeds	Organizing and calculating the amount of seed rate for the seed	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
8	2 Theoretical	a23: The student explains agricultural machines in the classes (Precision Agriculture Machines) The student should be able to know the agricultural machines	Farming machines in rows (precision farming machines)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam

		in the classes (precision agricultural machines)			
	3 Practical	c2: The student shows the agricultural machines in the classes (Precision Agriculture Machines) The student should be able to know the parts and components of agricultural machinery in the (precision agriculture machinery) classes	Sustaining and maintaining agricultural machines in rows (precision agricultural machines)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
9	2 Theoretical	b3: The student is familiar with the main parts of the hoeing equipment between the lines of cultivated plants The student acquires knowledge and concepts related to hoeing equipment between lines of cultivated plants	Machines for serving the growing crop (hoeing equipment between the lines of cultivated plants)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	b3: The student is familiar with the daily, weekly and end-of-season maintenance of hoeing equipment between the lines of planted plants. The student should be able to determine the appropriate method for performing the required maintenance operations	Maintaining and maintaining hoeing equipment between the lines of planted plants	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
10	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, field training	Semester exam 1, final exam
	3 Practical	b1: The student calculates the horsepower required for the irrigation pump The student should be able to calculate the discharge and efficiency of pumps	Use mathematical relationships to calculate pump discharge, calculate pump efficiency, and calculate pump horsepower	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
11	2 Theoretical	a2: Scientific visit The student must be able to gain knowledge in management Agricultural equipment in the field	Scientific visit	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	1b: Scientific visit The student should be able to observe safety conditions when working on agricultural equipment and machinery	Scientific visit	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1

12	2 Theoretical	b23: The student masters the means of transportation and handling on the farm (trailers - conveyor belts) The student acquires knowledge and concepts related to means of transportation and handling on the farm (trailers - conveyor belts)	Means of transportation and handling on the farm (trailers - conveyor belts)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam
	3 Practical	a6: The student learns about the means of transportation and handling on the farm (trailers - conveyor belts) The student should be able to know the parts and components (trailers - conveyor belts)	Means of transportation and handling on the farm (trailers - conveyor belts)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
13	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	Semester exam 1, final exam
	3 Practical	b5: The student is familiar with the daily, weekly and end-of-season maintenance of chemical control equipment (sprays). The student should be able to determine the appropriate time and quantity to conduct the pest control operation	Maintaining and maintaining control equipment (sprayers)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
14	2 Theoretical	2a: 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	Semester exam 1, final exam
	3 Practical	b5: The student is familiar with the daily, weekly and end-of-season maintenance of chemical control equipment (disinfectants). The student should be able to determine the appropriate time and quantity to conduct the pest control operation	Maintaining and maintaining control equipment (disinfectants)	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1
15	2 Theoretical	a2: The student knows harvesting equipment The student should be able to know harvesting equipment	Harvesting equipment (combined harvester - harvester units - their functions)	Interactive lecture, brainstorming, dialogue and discussion, field training	Semester exam 1, final exam

	3 Practical	b3: Daily, weekly, and end-of-season maintenance of harvesting equipment. The student should be able to apply maintenance.	Maintaining and maintaining harvesting equipment	Interactive lecture, brainstorming, dialogue and discussion, field training	Short practical test1

11. Course Evaluation

Seq.	Evaluating style	Calendar date (week)	marks	Relative weigh%
1	Report 1	fourth week	2.5	2.5
2	Report 2	fifth week	2.5	2.5
3	Short test (1) Quiz	sixth week	2	2
4	Short test (2) Quiz	fourteenth week	2	2
5	Short test (3) Quiz	fifteenth week	1	1
6	Semester test (1)	sixth week	7.5	7.5
7	Semester test (2)	eleventh week	7.5	7.5
8	Final theoretical test	Final semester exams	40	40
9	Practical field project	fifteenth week	5	5
10	Field evaluation	third and fifth week	2	2
11	Short practical test (1) Quiz	first week	1	1
12	Short practical test (2) Quiz	fourth week	0.5	0.5
13	Short practical test (3) Quiz	fourteenth week	1	1
14	Live drawings and homework	Weeks 6,8,9,10,11,12,13	5.5	5.5
15	Final practical test	Final semester exams	20	20
	total	100	100%	100%

12· Learning and teaching resources

Required textbooks (methodology, 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 friendship. Abdul Salam Mahmoud. 4 - Agricultural mechanization Written by: Dr. Muhammad Sayyid Imran Engineer: Kamal Muhammad Nafi 5 - Agricultural mechanization Written by: Dr. Mubarak Muhammad Mustafa Dr. Essam Ahmed Sahar 6- Agricultural engineering and mechanization Written by: Dr. Youssef Farag Engineer Kamal Muhammad Nafi
Main references (sources)	Agricultural mechanization (pullers and agricultural machines), written by Ahmed Al-Rai Imam Suleiman and Sami Muhammad Younis
Recommended supporting books and references (scientific journals, reports....)	
Electronic references, Internet sites	

رئيس قسم المحاصيل
أ د ميسر محمد عزيز

رئيس اللجنة العلمية
أ د وئام يحيى رشيد

مدرس المادة العملي
م عثمان مؤيد محمد توفيق

مدرس المادة النظري
م محمود حسين رفيق