Course Description Form

1. Course Name:

Agricultural machines and equipment

2. Course Code:

AGME207

3. Semester / Year:

The second spring semester/first stage/2023-2024

4. Description Preparation Date:

1/2/2024

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)

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8. Course Objectives

• Identify the components and parts of agricultural tractors, starting with the engine and the main and auxiliary devices it contains.

• Clarifying the basics and principles of engineering sciences and their applications in various agricultural fields.

• Discussing every type of agricultural equipment and machinery for the production of agricultural crops (in terms of structure and function), starting from plowing the soil and preparing the seedbed, passing through the stages of serving the growing crop, ending with harvesting operations and the subsequent processes through which these agricultural products are prepared, whether for consumption or Storage.

• Making the necessary adjustments to 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.

• The ability to manage agricultural 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 process required to be performed with the agricultural machine.

-	Self-education	1			
10. C	ourse Structu	ıre			
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	2 Theoretical	a2: Introducing the student to the methods of transmitting motion in agricultural machines and machinery and the means used to transmit motion The student acquires knowledge and concepts related to the methods and means used in transporting and transforming movement in agricultural tractors	Methods and means used in transporting and shifting the movement of agricultural pullers	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Semester exam final exam
	3 Practical	b1: Calculating the movement transfer rate in and the methods used in transferring and converting movement in agricultural pullers The student should be able to identify the methods used in transporting and shifting the movement of agricultural tractors	Mathematical relations for calculating the movement transfer ratio in and the methods used in transferring and converting movement in agricultural tractors	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Short practical tes
	2 Theoretical	a2: Introducing the student to the agricultural tractor, its types and specifications The student acquires knowledge and concepts related to the	Agricultural tug types and specifications	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam final exam

	agricultural			
	tractor, its types and			
3 Practic	specifications b2: Training the student to drive an agricultural tug The student must be able to operate and drive the agricultural tug in a scientific and	Driving an agricult tractor	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practical test1
Theoreti	correct manner2a2: Thecalstudentexplains thefoundations ofdesign andoperation ofcompressionand sparkengines, thefoundations ofdesign andoperation ofcourtion offour- and two-stroke engines.TheThestudentacquiresknowledgeandconceptsrelatedtointernalcombustionenginesstore	Internal combustion engines	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1 final exam
3 Practi		The main and auxiliary parts of the engine	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Short practica test1
Theoreti	2 a2: The student	Timing device, pilot wheel, crankshaft and power stages in different sequences	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1 final exam

		1	1	1
	device, pilot wheel, crankshaft, and power stages in different sequences			
3 Practica		Technical terminology of the engine and the mathematical relationship of the engine	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Short practical test1
Theoretica	2 al a2: The student shows the fuel injection device for compression engines The student acquires knowledge and concepts related to the fuel injection device for compression engines	Fuel injection device for compression engines	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Semester exam 1, final exam
3 Practic		Fuel injection system in agricultural tractors and its maintenance	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Short practica test1
Theoretica	2 a2: The student	Lubrication device and cooling device in agricultural pullers	Interactive lecture, brainstorming, dialogue and discussion, self- learning	Semester exam 1, final exam

	related to the			
	lubrication			
	device and the			
	cooling device			
3 Practical	b3: Repair	The cooling and	Interactive	Short
	and	lubrication	lecture,	practical
	maintenance of the water-	system in the	brainstorming,	test1
	cooling	agricultural tug and its	dialogue and discussion, self-	
	system and	maintenance	learning	
	the	manitemanee	icarining	
	lubrication			
	system in			
	agricultural			
	pullers			
	The student			
	should be			
	able to identify			
	faults in the			
	agricultural			
	tractor			
	engine			
2	a2: The student	Transmission	Interactive	Semester exam
Theoretical	shows the	devices in the	lecture,	1, final exam
	transmission	agricultural tug	brainstorming,	
	devices in the	(separator device	dialogue and discussion,	
	agricultural tug (separator	and gearbox).	self-learning	
	device and		Self-leaf ling	
	gearbox).			
	The student			
	acquires			
	knowledge and			
	concepts			
	related to the transmission			
	devices in the			
	agricultural tug			
	(separator			
	device and			
	gearbox)			
3	b3: Repair and	Maintenance and	Interactive	Short practical
Practical	maintenance of	repair of	lecture,	test1
	transmission	transmission devices	brainstorming,	
	devices in agricultural	(separator -	dialogue and discussion, self-	
	pullers (separator	gearbox)	learning	
	device and gear	geurbonj	lourning	
	box in			
	agricultural			
	pullers)			
	The student			
	should be able to			
	monitor safety conditions when			
	working on			
	agricultural			
	agriculturul	1	1	1
	equipment and			

2	a2: The student	Transmission	Interactive	short exams,
Theoretical	shows the	devices in the	lecture,	assignment of
	transmission	agricultural	brainstorming,	duty,
	devices in the	tug	dialogue and	discussions
	agricultural	(differential	discussion, field	
	tractor (the	device and	training, practical	
	differential device	vertical	exercises, and	
	and the vertical	device)	self-learning	
	device)	uevicej	Self-Ical Illig	
	2			
	The student			
	acquires			
	knowledge and			
	concepts related			
	to the			
	transmission			
	devices in the			
	agricultural			
	tractor (the			
	differential device			
	and the vertical			
	device)			
2 Due etter l	b3: Repair and	Maintenance and	Interactive	short exams,
3 Practical	maintenance of	repair of		assignment of
		1	lecture,	0
	transmission	transmission devices	brainstorming,	duty,
	devices in	(differential and	dialogue and	discussions
	agricultural	vertical devices)	discussion, field	
	pullers		training, practical	
	(differential		exercises, and	
	device and		self-learning	
	vertical device) in		_	
	agricultural			
	pullers			
	The student			
	should be able to			
	choose the			
	appropriate			
	plowing method			
	according to the			
	conditions and			
	nature of the field			
	to be plowed			
2	c3: The student	Power	Interactive	short
Theoretical	shows the power	transmission	lecture,	exams,
	transmission	devices in	brainstorming,	assignment of
	devices in the	agricultural	dialogue and	duty,
	agricultural	pullers	discussion, field	discussio
	tractor	Pullers	training,	uiscussi0
	The student		practical	
			-	
	acquires		exercises, and	
	knowledge and		self-learning	
	concepts related			
	to power			
	transmission			
	devices in			
	agricultural tugs			
3 Practical	b3: Operating and	Power	Interactive	short
5 Tractical	maintaining	transmission	lecture,	exams,
			brainstorming,	assignment of
	nower	parts		
	power transmission	parts (operation and	-	-
	power transmission devices in	parts (operation and maintenance)	dialogue and discussion, field	duty, discussio

	agricultural tugs		training, practical	
	The student		exercises, and	
	should be able to		self-learning	
	choose the		sen-ical initg	
	appropriate			
	plowing method			
	according to the			
	conditions and			
	nature of the field			
	to be plowed			
2	c3: The student	Primary and	Interactive	short
Theoretical	shows the	secondary soil	lecture,	exams,
	primary and	preparation	brainstorming,	assignment of
	secondary soil	and	dialogue and	duty,
	preparation	preparation	discussion, field	discussions
	and	equipment	training,	
	preparation	equipment	practical	
	equipment		exercises, and	
	The student		self-learning	
	acquires		sen-ieal lillig	
	knowledge and			
	concepts			
	related to			
	primary soil			
	preparation			
	and			
	preparation			
	equipment			
3 Practical	b1: Identifying	Methods of plowing	Interactive	short
	plowing	with plows, their	lecture,	exams,
	methods and	types, and	brainstorming,	assignment of
	types,	mathematical and	dialogue and	duty,
	applying	computational	discussion, field	discussions
	mathematical	applications for	training, practical	unocubbronic
	relationships	plowing equipment	exercises, and	
	to calculate	plowing equipment	self-learning	
	theoretical		Sell-leal lillig	
	productivity,			
	actual			
	productivity,			
	and field			
	efficiency of			
	plows.			
	The student			
	should be able			
	to calculate			
	the theoretical			
	and actual			
	productivity			
	and field			
	efficiency of			
	tillage			
-	equipment			,
2	c3: Scientific	Scientific visit	Interactive lecture,	short
Theoretical	visit		brainstorming,	exams,
	The student		dialogue and	assignment of
	acquires		discussion, field	duty,
	knowledge and		training, practical	discussions
	Knowledge and		truining, practicul	uiscussions
	concepts related		exercises, and self-	uiscussions

	special soil preparation and preparation equipment The student should be able to monitor safety conditions when working on agricultural equipment and machinery			
3 Practical	a2: Identifying the methods of netting and connecting agricultural machinery to the agricultural puller The student should be able to organize and connect agricultural machinery to the agricultural puller	Methods of netting and connecting agricultural machinery to the agricultural puller	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
2 Theoretical	a2: 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, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
3 Practical	b2: Laboratory and field organization of grain seeds The student should be able to organize grain seeds	Calibrating and maintaining seed and agricultural equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
2 Theoretical	a1: The student is introduced to fertilization equipment The student should be able to know fertilization equipment	Fertilization equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, practical exercises, and self-learning	short exams, assignment of duty, discussions
3 Practical	b1: Calculates and organizes the amount of fertilizer needed per unit area	Calibration and maintenance of fertilization equipment	Interactive lecture, brainstorming, dialogue and discussion, field	short exams, assignment of duty, discussions

		The student m be able operate a organize fertilization equipment	to and			training, prac exercises, self-learning	rtical and	
	2 Theoretical	a1: The studen is introduced t the hydraulic sprinkler Pneumatic, disinfectants and mechanica control The student acquires knowledge and concepts related to pest control equipment	co al d	Control equipment		Interactive lecture, brainstorming dialogue discussion, training, prace exercises, self-learning	and field	short exams, assignment of duty, discussions
	3 Practical	b1: Calculates and regulates the amount of pesticide needed per uni area The studer should be abl to organiz chemical control sprays	it nt le ze	Calibrating and maintaining control equipment		discussion, fi training, practical	ind	short exams, assignment of duty, discussions
	2 Theoretical	a2: The studen learns about th combined grain harvester. The stud should be able	nt he n dent	Harvesting equipment		discussion, fi training, practical	ind	short exams, assignment of duty, discussions
	3 Practical	b3: Sustaining and maintainin harvesting equipment The student m be able to open harvesting equipment	ng nust	Sustaining and maintaining harvesting equipment		Interactive le brainstormin dialogue discussion,	g, and field actical	short exams, assignment of duty, discussions
11.C	ourse Evalua	tion						
	Evaluation met		Eval	uation date (week)	Gr	rade	Relative	weight %
1	Report 1			k Four	2.		2.5	
2	Report 2			k Five 2.5	2.		2.5	
3	Short test (1) C	Juiz	Wee		2.	5	2.5	
<u> </u>				k Six k Fourteen	2		2	
				K FOULLEEN	2		L _	
4	Short Test (2) (1		1	
	Short Test (2) (Short Test (3) (Semester test	Quiz	Wee	k Fifteen week	1 7.	-	1 7.5	

7	Semester test (2	the eleventh w	eek	7.5	7.5
8	final theoretical exam final	final semester e	exams	40	40
	semester exams 40 40	ļ			
9	Practical field project	week fifteen		5	5
10	Field evaluation	weeks three an	ıd 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	1
14	Direct drawings and homework	weeks 6, 8, 9, 1 and 13	.0, 11, 12,	5.5	5.5
15	Final practical exams	Final semester	exams	20	20
Total	100			100%	100%
12.Le	earning and Teaching Re	esources			
Required textbooks (curricular books, if any)			Salam M Muhamr 2- Agric written b	Iuhammad Ezza mad Ali. sultural machines	itten by Dr. Abdel at and Lotfi Hussein s and machinery, ashem Al-Tahan and Al-Naama.
Main references (sources)			Agricultu agricultu Al-Rai	ural mechanizati	ion (pullers and vritten by Ahmed
Recomm	mended books and reference	ces (scientific			-
journals	s, reports)				
Electror	nic References, Websites				

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مدرس المادة النظري: م. غزوان احمد دحام مدرس المادة العملي: م. ليت محمود يحيى

رئيس اللجنة العلمية:

رئيس قسم الارشاد الزراعي ونقل التقنيات: