Course Description Heavy Equipment

1. Course Name:
Heavy Machines and Equipment
2. Course Code:
HEME476
3. Semester / Year:
The first semester/4 stage/2024-2025
4. Description Preparation Date:
1/2/2025
5. Available Attendance Forms:
Presence + on line
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: Muosab abd alwihid mohammed Email: goldenagr@uomosul.edu.iq Name: Mahmood natiq Email: manatiq9 @uomosul.edu.iq
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.
9. Teaching and Learning Strategies
- Interactive lecture

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- 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 method
1	2 Theoretical	C1/C2/c3:Identifying the types of soils with their different textures and their suitability in determining the type of machine required	Soil physical and mechanical characteristics	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Applications Mathematical About the physical and mechanical properties of soil	Reports	quiz homework discussions
2	2 Theoretical	b1/a1/a2: Identifying machines for dismantling soil and making trenches for different types of soil	Machines for loosening soil and making trenches	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about soil dismantling and trenching machines	Reports	quiz homework discussions
3	2 Theoretical	a3/a4/c4 :Choose a reclamation project	Identify the conditions that must be met in the soil to be reclaimed	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications for reclamation project selection	Reports	quiz homework discussions

4	2 Theoretical	a5/c5/c6/bulldozer	Knowing the types of bulldozers and methods of cutting soil	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about bulldozer	Reports	quiz homework discussions
5	2 Theoretical	c7/b2/b3: /Using the weapon at different angles to cut the soil, depending on the type of work	Methods of cutting soil using a bulldozer	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications on methods of cutting soil using a bulldozer	Reports	quiz homework discussions
6	2 Theoretical	b4/c8:Calculating the maximum and normal productivity of the bulldozer	Methods for calculating bulldozer productivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications on methods of calculating bulldozer productivity	Reports	quiz homework discussions
7	2 Theoretical	a6/a7/a8/Shovel	Identify the types of Shovels and calculate their balance and the forces affecting them	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about shovels	Reports	quiz homework discussions
8	2 Theoretical	a9/ Practical methods for using the loader and calculating the optimal number of trucks and loaders	Applications on practical methods for using shovel and calculating the optimal number of trucks and shovels	Auditory methods Writing style Direct dialogue style	final semester exams
	3 Practical	a3/Applications Mathematical	Mathematical applications on practical methods for using a truck and calculating the optimal number of trucks and shovels	Reports	final semester exams
9	2 Theoretical	a10/a11/a12 Leveling mechanism (grader)	Identify the leveling mechanism (grader), the forces affecting it, and calculate its productivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about the settlement mechanism (grader)	Reports	quiz homework discussions

10	2 Theoretical	c9/Scriber	Identify the scriptor mechanism, the forces affecting it, and calculate its productivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about the script	Reports	quiz homework discussions
11	2 Theoretical	b5/Machines for digging irrigation and digging channels	Identifying machines for digging irrigation and drainage channels, the forces affecting them, and calculating their productivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about machines for digging irrigation canals and punctures	Reports	quiz homework discussions
12	2 Theoretical	b6/power excavators	Identify of power excavators, the forces affecting, and calculate roductivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about power excavators	Reports	quiz homework discussions
13	2 Theoretical	c10/Hydraulic digging machines	Identify hydraulic digging machines, the forces affecting them, and calculate their productivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about hydraulic digging machines	Reports	quiz homework discussions
14	2 Theoretical	c11/Identify of clam shell	Identify of clam shells, the forces affecting them, and calculate their productivity	Auditory methods Writing style Direct dialogue style	quiz homework discussions
	3 Practical	a3/Applications Mathematical	Mathematical applications about clam shell	Reports	quiz homework discussions
15	2 Theoretical	a13/Influencing force of clam shell	b2/Analysis of the forces affecting the bucket and different inclination angles	Auditory methods Writing style Direct dialogue style	final semester exams
	3 Practical	a3/Applications Mathematical	Mathematical applications on the force affecting the bucket clam shell	Reports	final semester exams

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- Agricultural tugs. Written by Dr. Abdel Salam Muhammad Ezzat and Lotfi Hussein Muhammad Ali. 2- Agricultural machines and machinery, written by Dr. Yassin Hashem Al-Tahan and Dr. Muhammad Jassim Al-Naama.
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	

مدرس المادة النظري

د. مصعب عبد الواحد محمد

مدرس المادة العملي

محمود ناطق

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