

Course Description Form

1. Course Name:	
Electrical systems of tractors	
2. Course Code:	
ELST479	
3. Semester / Year:	
First semester (fall)/2023–2024	
4. Description Preparation Date:	
1/9/2023	
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: Hussain Abed Hammood & Muhammad Nazim Abdullah Email: hu_hamood@uomosul.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> - Graduating agricultural engineers and researchers to serve the agricultural sector. - Scientific cooperation with agricultural directorates and other parties with the aim of improving agricultural production in quantity and quality. - Investing in modern technology in the field of Electrical systems of tractors in order to develop education, training and research programmes. - Qualifying students to work according to the modern production system that relies on computers and information technology to operate. - Preparing an advanced technical staff in the field of agricultural tractor electrical maintenance to meet the needs of society.
9. Teaching and Learning Strategies	
Strategy	

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical	a1: Identify the Student to the basic principles of agricultural tractor electricals	General electrical principles	In-person, electronic or video lectures	Discussion quizzes

	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of agricultural tractor electricals	In-person or electronic lectures and training	A short practical test
2	2 Theoretical	a1: Identify the student to the components of the lead-acid battery, the theory of its operation, and how to maintain it	Lead acid battery	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of battery inspection and maintenance	In-person electronic lectures and training	A short practical test
3	2 Theoretical	a1: Identify the student to the components of the alkaline battery, the theory of its operation, and how to maintain it	alkaline battery	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of battery inspection and maintenance	In-person or electronic lectures and training	A short practical test
4	2 Theoretical	a1: Identify the student to the types of wires used in the electrical circuits of agricultural tractors, their specifications, and how to maintain them.	Electrical wires	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles inspecting and maintaining electrical circuits	In-person or electronic lectures and training	A short practical test
5	2 Theoretical	a1: Identify the student to the theory of direct current, generator components, and their maintenance	DC generator	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of inspecting and maintaining a direct current generator	In-person or electronic lectures and training	A short practical test
6	2 Theoretical	a1: Identify the student to the theory of alternating current generator components, and their maintenance	Alternating current generator	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of inspecting and maintaining an alternating current generator	In-person or electronic lectures and training	A short practical test
7	2 Theoretical	a1: Identifying the starter, its malfunctions, and maintenance	the starter	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs	Identify the student to the practical principles	In-person or electronic	A short practical

		to master his work	of checking and maintaining the starter	lectures and training	test
8	2 Theoretical	b3: Test and determine the skill levels acquired by each student	First monthly exam	Questions that include previous topics	Class test
	3 Practical	b3: The student uses the information he needs to master his work	First monthly exam	Questions that include previous topics	practical test
9	2 Theoretical	a1: Identify the types of lamps used in agricultural tractors, their installation, and how they work	Light bulbs	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles inspecting and maintaining lamps	In-person or electronic lectures and training	A short practical test
10	2 Theoretical	a1: Identify the student to the devices and equipment used in repairing agricultural tug malfunction	A field visit to specialized repair workshops	A lecture by technicians in the repair shop	Questions and reports about the visit
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of safety and security while working in workshops	In-person or electronic lectures and training	A short practical test
11	2 Theoretical	a1: Identify the components and theory of operation of the electric ignition system, malfunctions, and maintenance	Electric ignition system	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of inspecting and maintaining the electrical ignition system	In-person or electronic lectures and training	A short practical test
12	2 Theoretical	a1: Identify the side signal electrical circuit	Side signals	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles inspecting and maintaining electrical circuits for side signals	In-person or electronic lectures and training	A short practical test
13	2 Theoretical	a1: Identify the types of indicators on the agricultural tractor's dashboard and the theory of its operation and maintenance	Electrical indicators	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of inspecting and maintaining the dashboard an agricultural tug	In-person or electronic lectures and training	A short practical test
14	2 Theoretical	a1: Identify the theory of so generation in a horn, its installation, and its malfunctions	The horn	In-person, electronic or video lectures	Discussion quizzes
	3 Practical	b3: The student uses the information he needs to master his work	Identify the student to the practical principles of checking and maintaining a horn	In-person or electronic lectures and training	A short practical test

15	2 Theoretical	A2: Testing and determining the skill levels acquired by each student	The second monthly exam	Questions that include previous topics	Class test
	3 Practical	B3: The student uses the information he needs to master his work	The second monthly exam	Questions that include previous topics	practical test

11. Course Evaluation

Seq.	Evaluating style	date	marks	Relative weight
1	Final report: theoretical + practical	Theoretical: Week 13 Practical: week 13	7 theoretical + 6 practical	%13
2	Monthly test 1	Week:8	4 theoretical + 2 practical	%6
3	Monthly test 2	Week:15	10 theoretical + 5 practical	%15
4	Quizzes	Week:12	4 theoretical + 2 practical	%6
5	Final practical test	The week of the theoretical exam	20	%20
6	Final theoretical test	The week of the Practical exam	40	%40
	the total		100	%100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Agricultural tractor repair, Dr. Muhammad Jassim Al-Naama, 1992
Main references (sources)	Maintenance and Repair, Ali Saleh Al-Najjar, 1981
Recommended books and references (scientific journals, reports...)	- The battery as you never knew it before, Ahmed Mohieddin Attia 2013 -Automotive Electricity, Ministry of Education, Syrian Arab Republic, 2018
Electronic References, Websites	https://www.youtube.com



مدرس المادة العملي

م. م. محمد ناظم عبدالله



رئيس قسم المكنات والآلات الزراعية

أ.م. نوفل عيسى محميد




مدرس المادة النظري

م. حسين عبد حمود



رئيس اللجنة العلمية

أ.د. أركان محمد أمين صديق