Course Description Form-Soil Preparation Equipment

1. Course Name:
Soil Preparation Equipment
2. Course Code:
SOPE377
3. Semester / Year:
first semester 2025-2026
4. Description Preparation Date:
1/9/2025
5. Available Attendance Forms:
Combined (Attendance + distance education)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 theoretical hours +30 practical hours =60 hours \ 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: prof. dr. Adel Ahmed Abdullah Email: dr.adil.aa@uomosul.edu.iq **Ahmed Mohammad Ameen Saeed Email: ahmed_ameem@uomosul.edu.iq**
8. Course Objectives
1- Explaining the basics and principles of engineering sciences and their applications in the field of soil preparation equipment **2- Gaining knowledge in improving soil treatments and preparing it with machines in a way that suits agricultural reality and development** **3- The ability to develop modern soil preparation systems in line with the general trend in production and the requirements of human resources capable of dealing with those systems**
9. Teaching and Learning Strategies
1-Interactive lecture **2-Brainstorming** **3-Dialogue and discussion** **4-Field Training** **5-Practical exercises** **6-Field project** **7-Self-education**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical	a1 knows the importance of soil and its types and knows the types of tillage	Importance, types of soils, and types of tillage	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2Practical	c3 tests the technological properties of the soil a2 classifies types of soil preparation equipment	Technological characteristics of the soil and their impact on tillage operations and types of tillage Classification of tillage equipment	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
2	2 theoretical	a1 knows what the mold board plow is and its parts, and remembers its features a5 distinguishes its types	Mold board plow Types features_ parts	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2 Practical	c3 tries and tests the mold board plow in the field c2write a report on the mold board plow	Applications, regulations, and field experiments on the mold board plow	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
3	2 theoretical	a1 knows what a disc plow is and its parts, and remembers its features a5 distinguishes its types	disc plow Types - features - parts	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2 Practical	c3 trials and tests a disc	Applications,	Interactive lecture,	Short daily test1

		plow in the field c2write a report on the disc plow	**regulations, and field experiments on the disc plow**	**brainstorming, dialogue and discussion, field training, and self-learning**	**Semester test1 Final test**
4	**2 theoretical**	**a1 knows what a vertical disc plow is and its parts, and remembers its features a5 distinguishes its types**	**Vertical disc plow - types - features - parts**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**
	2 Practical	**c3 tries and tests a vertical disc plow in the field c2write a report on the vertical disc plow**	**Applications, regulations,and field experiments on the Vertical disc plow**	**Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning**	**Short daily test1 Semester test1 Final test**
5	**2 theoretical**	**a1 knows what a chisel plow is and its parts, and remembers its features a5 distinguishes its types**	**Chisel plow - types - features - parts**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**
	2 Practical	**c3 tries and tests the chisel plow in the field c2writes a report on the chisel plow**	**Applications, regulations,and field experiments on the The chisel plow**	**Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning**	**Short daily test1 Semester test1 Final test**
6	**2 theoretical**	**a1 knows what a rotary plow is and its parts, and remembers its features a5 distinguishes its types**	**Rotary plow - types - features - parts**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**
	2 Practical	**c3 tries and tests the rotary plow in the field c2write a report on the rotary plow**	**Applications, regulations,and field experiments on the Rotational plow**	**Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning**	**Short daily test1 Semester test1 Final test**
7	**2 theoretical**	**a1 knows what subsoil plow is and its parts, and remembers its features a5 distinguishes its types**	**Subsoil plow (mulching and maintenance plow) - features - parts**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**
	2 Practical	**c3 tries and tests the subsoil plow in the field c2write a report on the subsoil plow**	**Applications, regulations,and field experiments on the subsoil plow**	**Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning**	**Short daily test1 Semester test1 Final test**
8	**2 theoretical**	**a1 knows what a plow or undercutting hoe is and its parts, and remembers its features a5 distinguishes its types**	**Undercut plow or hoe - types - features - parts**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**
	2 Practical	**c3 tries and tests the plow or the sub-cutting hoe in the field c2 writes a report on the plow or the undercut hoe**	**Applications, regulations,and field experiments on subsoiler shear joints**	**Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning**	**Short daily test1 Semester test1 Final test**
9	**2 theoretical**	**a1 knows the types of combs and their parts and remembers their features harrows a5 distinguishes its types**	**Disc, crawler, and toothed combs - types - features - parts**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**
	2 Practical	**c3 tries and tests types of harrows in the field c2write a report on the types of combs**	**Applications, regulations, and field experiments on combs of all kinds**	**Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning**	**Short daily test1 Semester test1 Final test**
10	**2 theoretical**	**a1: Identifying the operation Rollers and graders and Land and land-leveling machines using laser technology**	**Rollers and graders and Land-Leveling Machines – Application of Operational Mechanisms Using**	**Interactive lecture, brainstorming, dialogue and discussion, self-learning**	**Short daily test1 Semester test1 Final test**

		based on artificial intelligence and GPS for agricultural fields. a5: Distinguishes their type a5 distinguishes its types	Artificial Intelligence		
	2 Practical	c3 tries and tests graders and graders in the field c2 writes a report on rollers and graders	Applications, regulations, and field experiments on rollers and graders	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
11	2 theoretical	a1 knows what planning machines and their parts are and remembers their features a5 distinguishes its types	Planning machines and compound machines - types - features - parts	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2 Practical	c3 tries and tests plotting machines in the field c2writes a report on plotting machines	Applications and organization of field experiments on planning machines	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
12	2 theoretical	a1 knows what the mechanical assembly of soil preparation machines and its parts is and remembers its advantages a5 distinguishes its types	Mechanical assembly of preparation machines Soil and its systems	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2 Practical	c3 experiments and tests the mechanical assembly of soil preparation machines in the field c2 write a report on the mechanical assembly of soil preparation machines	Applications, regulations, and field experiments on mechanical assembly machines	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
13	2 theoretical	c1 calculates field productivity and field efficiency of soil preparation equipment	Calculating the process productivity and field efficiency of initializing machines the soil	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2 Practical	a3 solves mathematical problems about field productivity and field efficiency	Solve mathematical problems on how to calculate field productivity and field efficiency	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
14	2 theoretical	c1 calculates the capacity and sliding requirements of soil preparation equipment	Calculating the power, sliding, and (floating and soil compaction) requirements for soil preparation machines	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short daily test1 Semester test1 Final test
	2 Practical	a 3 solves calculation problems about capacity requirements and sliding of soil preparation equipment	Solve mathematical problems on how to calculate power and slip requirements with field experiments	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test
15	2 theoretical	a1 knows the importance	The importance of	Interactive lecture,	Short daily test1

		of maintaining and maintaining soil preparation equipment	maintenance and maintenance - storing soil preparation machines	brainstorming, dialogue and discussion, self-learning	Semester test1 Final test
	2 Practical	c4 inspects machinery in the field c3 is trying to perform maintenance operations and perpetuate	Educational field applications for how to maintain, sustain, and store soil preparation machines	Interactive lecture, brainstorming, dialogue and discussion, field training, and self-learning	Short daily test1 Semester test1 Final test

10. Course Evaluation				
Seq.	Evaluating style	date	marks	Relative weight
1	Home reports	every week	10	10%
2	Short tests	every week	10	10%
3	Semester test 1	The seventh week	10	10%
4	Semester test 2	The final week	10	10%
5	Final practical test	End of the course	20	20%
6	Final theoretical test	End of the course	40	40%
	the total		100	100%

11. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Tillage equipment
Main references (sources)	FARM MACHINERY AND EQUIPMENT
Recommended books and references (scientific journals, reports...)	ELEMENTS of Agricultural Machinery
Electronic References, Websites	https://www.youtube.com