

Course Description Form/ Soil and Water conservation

1. Course Name:					
Soil and water conservation					
2. Course Code:					
Sowc449					
3. Semester / Year:					
First semester/2023-2024					
4. Description Preparation Date:					
1/9/2023					
5. Available Attendance Forms:					
Life in person					
6. Number of Credit Hours (Total) / Number of Units (Total)					
2 + 3 / 3.5					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. khaled Anwer khaled Email: Khalid.anwar31@uomosul.edu.iq					
8. Course Objectives					
Course Objectives					
<ul style="list-style-type: none"> - Enable the student to understand and comprehend what is related to soil and water conservation and its relationship to soil science and water resources - Enable the student to know the most important methods of soil maintenance and water harvesting - Enable the student to become familiar with the most important water sources - Empowering the student with the ability to detect types of water and wind erosion -The student can control erosion and preserve the soil from erosion - Enabling the student to become familiar with the most important laboratory methods for estimating erosion and erosion and detecting soil loss rates and their factors. 					
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> - Interactive lecture - Brainstorming - Dialogue and discussion - Assigning tasks and reporting - Presentations of examples of sites degraded by erosion 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 virtual	A1: Learn about the concept of soil and water conservation, its benefits, and an introduction and definition of land degradation by water and wind. B20: The student will be	Introduction to conservation	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, exam

		able to analyze the factors that have a mutual influence between water scarcity, desertification, and climate change			
	3 Laboratory	C1: The student will examine the tools for measuring rain amounts and be able to design scientific experiments by applying modern technologies.	Analysis of rainfall data	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
2	2 virtual	A1: Learn about the concept of soil and water conservation, its benefits, and an introduction and definition of land degradation by water and wind. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.	The topic of Precipitation	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
	3 Laboratory	C1: The student will examine the tools for measuring rain amounts and be able to design scientific experiments by applying modern technologies. D19: The student discovers any soil degradation caused by water and is able to deal with water sources, soil and other agricultural natural resources.	Rainfall rate		Direct drawing
3	2 virtual	A2: The student is familiar with the most important factors affecting water erosion	Run off		Semester exam 1, final exam
	3 Laboratory	C1: The student will examine the tools for measuring rain amounts and be able to design scientific experiments by applying modern technologies. C25: The student should be able to implement water harvesting projects and good	Depth of rainfall		Field evaluation

		agricultural practices to maximize productivity to obtain safe food.			
4	2 virtual	A2: The student is familiar with the most important factors affecting water erosion B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification and climate change.	Rainfall data analysis		Semester exam 1, final exam
	3 Laboratory	C1: The student will examine the tools for measuring rain amounts and be able to design scientific experiments by applying modern technologies. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food. D24: The student interprets quantitative information from formulas, graphs, tables, plans, simulations, and visualizations, draws conclusions from that information, and represents it symbolically, visually, and numerically.	Examples of soil and water conservation	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Practical quiz 2, direct drawing
5	2 virtual	A2: The student is familiar with the most important factors affecting water erosion A20: The student masters methods for treating water erosion and is able to explain modern techniques related to soil, water, and environmental conservation. D1: That the student practices various thinking skills in a systematic and positive manner in diagnosing the problems and issues he faces while	Surface runoff in soil	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam

		<p>working and proposing appropriate solutions to them.</p> <p>E1: The student proposes ways to preserve the environment and natural resources and preserve the soil from grazing</p>			
	3 Laboratory	<p>C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.</p> <p>D24: The student interprets quantitative information from formulas, graphs, tables, plans, simulations, and visualizations, draws conclusions from that information, and represents it symbolically, visually, and numerically.</p>	The rational method for calculating the loss	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
6	2 virtual	<p>A2: The student is familiar with the most important factors affecting water erosion</p> <p>A24: The student exercises the factors affecting erosion in the field and explains the principles of planning and implementing agricultural operations and appropriate scientific methods in soil and water treatment.</p> <p>D1: The student practices various thinking skills in a systematic and positive manner in diagnosing the problems and issues he faces while working and proposing appropriate solutions to them.</p>	Forms of water erosion	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
	3 Laboratory	<p>C1: The student examines the tools for measuring rainfall amounts and is able to design scientific experiments by applying modern technologies.</p> <p>C25: The student should be able to implement water</p>	The CN method in calculating the flow	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework

		<p>harvesting projects and good agricultural practices to maximize productivity to obtain safe food.</p> <p>B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification, and climate change.</p>			
7	2 virtual	<p>A1: Learn about the concept of soil and water conservation, its benefits, and an introduction and definition of land degradation by water and wind</p> <p>A24: The student exercises the factors affecting erosion in the field and explains the principles of planning and implementing agricultural operations and appropriate scientific methods in soil and water treatment.</p> <p>B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification and climate change.</p>	The most important methods of surface and subsurface runoff	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 2, final exam
	3 Laboratory	<p>C1: The student examines the tools for measuring rainfall amounts and is able to design scientific experiments by applying modern technologies.</p> <p>C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.</p> <p>B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification, and climate change.</p>	Kinetic energy KE	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Field project
8	2 virtual	A2: The student is familiar with the most important	Mechanics of water erosion	Interactive lecture,	Semester exam 2, final exam

		factors affecting water erosion B9: The student explains the most important methods of movement of plankton and sediments as a result of water erosion, and suggests ways to analyze data and information and interpret agricultural phenomena using applied programs to solve the problem of erosion.		brainstorming, dialogue and discussion, self-learning	
	3 Laboratory	C1: The student examines the tools for measuring rainfall amounts and is able to design scientific experiments by applying modern technologies. C2: The student should be able to prepare scientific research and studies in his field of specialization. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.	General equation for soil loss	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
9	2 virtual	A1: Learn about the concept of soil and water conservation, its benefits, and an introduction and definition of land degradation by water and wind C2: The student should be able to prepare scientific research and studies in his field of specialization.	Erosion and soil productivity		Semester exam 2, final exam
	3 Laboratory	C2: The student should be able to prepare scientific research and studies in his field of specialization. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.	Calculating the erosion susceptibility factor of rain	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
10	2 virtual	A2: The student is familiar with the most important	Controlling water erosion	Interactive lecture,	Semester test2

		<p>factors affecting water erosion</p> <p>B9: The student explains the most important methods of movement of plankton and sediments as a result of water erosion, and suggests ways to analyze data and information and interpret agricultural phenomena using applied programs to solve the erosion problem.</p> <p>C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.</p>		<p>brainstorming, dialogue and discussion, self-learning</p>	
	3 Laboratory	<p>C2: The student should be able to prepare scientific research and studies in his field of specialization.</p> <p>C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.</p> <p>D19: The student discovers any soil degradation caused by water and is able to deal with water sources, soil and other agricultural natural resources.</p>	<p>Soil erosion susceptibility factor using the nomograph method</p>	<p>Interactive lecture, brainstorming, dialogue and discussion, self-learning</p>	<p>Direct drawing and homework</p>
11	2 virtual	<p>A2: The student is familiar with the most important factors affecting water erosion</p> <p>B9: The student explains the most important methods of movement of plankton and sediments as a result of water erosion, and suggests ways to analyze data and information and interpret agricultural phenomena using applied programs to solve the erosion problem.</p> <p>C25: The student should be able to implement water harvesting projects and good</p>	<p>USLE Calculation Methods</p>	<p>Interactive lecture, brainstorming, dialogue and discussion, self-learning</p>	<p>Final test</p>

		agricultural practices to maximize productivity to obtain safe food.			
	3 Laboratory	C2: The student should be able to prepare scientific research and studies in his field of specialization. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food. D19: The student discovers any soil degradation caused by water and is able to deal with water sources, soil and other agricultural natural resources.	Topographic factor calculations in LS erosion	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
	2 virtual	A1: Learn about the concept of soil and water conservation, its benefits, and an introduction and definition of land degradation by water and wind. A2: The student is familiar with the most important factors affecting water erosion	The concept of wind erosion and its risks	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final Test
12	3 Laboratory	B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification, and climate change. C2: The student should be able to prepare scientific research and studies in his field of specialization. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.	Calculate the weighted rate of dry soil loss, MWD	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
13	2 virtual	A1: Learn about the concept of soil and water conservation, its benefits, and an introduction and definition of land	Mechanics of wind erosion	Interactive lecture, brainstorming, dialogue and discussion,	Final Exam

		<p>degradation by water and wind.</p> <p>A2: The student is familiar with the most important factors affecting water erosion</p> <p>B9: The student explains the most important methods of movement of plankton and sediments as a result of water erosion, and suggests ways to analyze data and information and interpret agricultural phenomena using applied programs to solve the erosion problem.</p>		self-learning	
	3 Laboratory	<p>C2: The student should be able to prepare scientific research and studies in his field of specialization</p> <p>C6: The student examines the tools used to examine soil</p> <p>C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.</p>	Calculate the weighted rate of loss of wet soil (MWD).	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
14	2 virtual	<p>C2: The student should be able to prepare scientific research and studies in his field of specialization</p> <p>B9: The student explains the most important methods of movement of plankton and sediments as a result of water erosion, and suggests ways to analyze data and information and interpret agricultural phenomena using applied programs to solve the erosion problem.</p>	Controlling wind erosion	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 Laboratory	<p>B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification, and climate change.</p> <p>C2: The student should be able to prepare scientific research and studies in his</p>	Crop management factor calculations	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short practical test3

		field of specialization. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food.			
15	2 virtual	C2: The student should be able to prepare scientific research and studies in his field of specialization B9: The student explains the most important methods of movement of plankton and sediments as a result of water erosion, and suggests ways to analyze data and information and interpret agricultural phenomena using applied programs to solve the erosion problem.	Maintenance applications necessary to maintain productivity	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 Laboratory	B20: The student will be able to analyze the factors that have a mutual influence between water scarcity, desertification, and climate change. C2: The student should be able to prepare scientific research and studies in his field of specialization. C25: The student should be able to implement water harvesting projects and good agricultural practices to maximize productivity to obtain safe food. D24: The student interprets quantitative information from formulas, graphs, tables, plans, simulations, and visualizations, draws conclusions from that information, and represents it symbolically, visually, and numerically.	Calculating the agricultural uses factor.	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Field project


Course Evaluation


No	Evaluation methods	Evaluation date	Grade	Relative weight
1	Report 1	fourth week	2.5	2.5
2	Report 2	The fifth week	2.5	2.5
3	Short test (1) Quiz	the sixth week	2	2


4	Short test (2) Quiz	The fourteenth week	2	2
5	Short test (3) Quiz	The fifteenth week	1	1
6	Semester test (1)	the sixth week	7.5	7.5
7	Semester test (2)	The eleventh week is difficult	7.5	7.5
8	Final theoretical test	Final semester exams	40	40
9	Practical field project	The fifteenth week	5	5
10	Field evaluation	The third and fifth week	2	2
11	Practical short test (1) Quiz	The first week	1	1
12	Short practical test (2) Quiz	fourth week	0.5	0.5
13	Short practical test (3) Quiz	The fourteenth week	1	1
14	Live drawings and homework	Weeks 6, 8, 9, 10, 11, 12 and 13	5.5	5.5
15	Final practical test	Final semester exams	20	20
	Total	100	100%	%100


Learning and Teaching Resources

Required textbooks (curricular books, if any)	Soil management and conservation
Main references (sources)	USDA
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	


Assi. Prof. Dr. Khaled Anwer khaled


Assi. Lectu. Reem Waleed Alsafar


Assit. Prof. Dr. Abdul kader Abash sbak
Head of Scientific Member


Dr. Ammar Younis
Head of Department

