



Course Description Form

1. Course Name:	
Irrigation and drainage	
2. Course Code:	
IRDR 308	
3. Semester / Year:	
First semester 2023–2024	
4. Description Preparation Date:	
1 \ 2\ 2024	
5. Available Attendance Forms:	
presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical + 3 practical / 3.5	
7. Course administrator's name (mention all, if more than one name)	
Name: mooatasim daood .S.gha & Alia abdul latif jassim Email: mooatasim@uomosul.edu.iq	
8. Course Objectives	
<ul style="list-style-type: none"> - Enable the student to understand what is the science of irrigation what is the irrigation process - Enabling the student to become familiar with the classification of irrigation water - Enabling students to appreciate irrigation competencies - Enable the student to schedule irrigation and know the water need of the crop - Enabling the student to know the different irrigation methods - Enable the student to learn about the characteristics of sprinkler and drip irrigation 	<p>practical:</p> <ul style="list-style-type: none"> - Enable the student to recognize the mathematical relationships between soil parameters and knowledge of the depth of water in the soil - The student will be able to estimate the moisture content of the soil – work on the pressure device and estimate ready water - He can estimate the tip - The student is able to estimate and calculate water consumption. - The student estimates the volume of water and drainage in the canals
9. Teaching and Learning Strategies	
<p>theoretical:</p> <ul style="list-style-type: none"> - Interactive lectures - Brainstorming 	<p>practical:</p> <ul style="list-style-type: none"> - Assigning group work to reveal leadership skills - Assigning tasks and reporting for each experiment

- Dialogue and discussion - Assigning tasks and reporting	
--	--

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical 3 practical	Theoretical:a1 What is the science of irrigation, the irrigation process, and what the sources of water Practical:a8What are the components and properties matter for irrigation drainage?	theory: Irrigation science Practical: Mathematical relationships of soil components	theory: Audio methods, blackboard practical : Laboratory work to estimate some properties	Short exams, assignments, discussion
2	2 Theoretical 3 practical	Theoretical: a2The student learns about rain-fed regions, and what purposes irrigation achieve Practical: a9examples and applications of equivalent depth	Theoretical: Classification of rain-fed regions practical : Estimating the equivalent depth of soil water	Theoretical: The blackboard is style of dialogue practical : Laboratory application and reporting	Short exams, assignments, discussion
3	2 Theoretical 3 practical	Theoretical: a3The student is familiar with the standards adopted in evaluating the quality of irrigation water in terms of salinity, sodicity, and toxicity Practical b9Laboratory work to estimate soil moisture content	Theoretical: Standards adopted in evaluating the quality of irrigation water practical : Estimating soil moisture conservation	Theoretical: Audio methods: writing on the blackboard practical : Assigning tasks and reporting	Short exams, assignments, discussion
4	2 Theoretical 3 practical	Theoretical: a4The student will be able to estimate irrigation efficiencies (efficiency of transportation, irrigation, storage, and homogeneity) Practical:b10 The student can work on the pressure device	Theoretical Irrigation efficiencies Practical: pressure device	Theoretical: The solution method on the board Practical Laboratory work writing reports	Short exams, assignments, discussion
5	2 Theoretical 3 practical	Theoretical: b1Applications and solution examples of irrigation efficiencies and uniformity coefficient Practical: b11The student able to estimate and calculate ready-made water	Applications and examples of irrigation efficiencies Practical: Estimating field capacity and permanent wilting point	Theoretical: Examples on the board practical : Make reports	Short exams, assignments, discussion
6	2 Theoretical 3 practical	Theoretical:a5 The student is able to learn about irrigation scheduling what water needs are Practical: a10The student can estimate water consumption	Theoretical: Scheduling irrigation and water needs Practical: water consumption	Theoretical: The blackboard is a direct dialogue style practical : Assigning tasks reports	exams,
7	2 Theoretical 3 practical	Theoretical:b2 The student learns the stages	Theoretical: Plant growth stages,	Theoretical: Audio methods, writing	Short exams, assignments, discussion

		<p>plant growth and the related curve, as well as calculating the number of days between one irrigation and another</p> <p>Practical: b12The student can estimate evaporation using evaporation basin</p>	<p>irrigation frequency</p> <p>Practical: evaporation pa</p>	<p>style on the blackbo</p> <p>practical : Assigning tasks reporting</p>	
8	2 Theoretical 3 practical	<p>Theoretical:a6 The student is able to learn about the different methods of irrigation and the ability to understand the advantages of surface irrigation</p> <p>Practical: b13The student is able to estimate water drainage</p>	<p>Theoretical: Different ways to add water</p> <p>Practical: Methods of water measurements</p>	<p>Theoretical: Auditory methods 'whiteboard method'</p> <p>Practical: field observations</p>	Short exams, assignments, discussions
9	2 Theoretical 3 practical	<p>Theoretical:b3 The student is familiar with the irrigation method with its characteristics and estimating the depth of irrigation using the irrigation method</p> <p>Practical: a11The student is able to estimate water drainage</p>	<p>Theoretical: irrigation method</p> <p>Practical: Methods of measuring water - measuring facilities</p>	<p>Theoretical: Writing on the blackboard is a</p> <p>practical direct dialogue method: Assigning tasks reporting</p>	Short exams, assignments, discussions
10	2 Theoretical 3 practical	<p>Theoretical:b4 The student is able to learn about the advantages of sprinkler irrigation as well as devices</p> <p>Practical: a12The student will be able to estimate rain in the field or laboratory</p>	<p>Theoretical: Sprinkler irrigation</p> <p>Practical : the tip</p>	<p>Theoretical: Audio methods, blackboard</p> <p>work: field and laboratory work</p>	Short exams, assignments, discussions
11	2 Theoretical 3 practical	<p>Theoretical:b5 The student is able to estimate the capacity of the sprinkler irrigation system, the capacity of one sprinkler</p> <p>Practical: b14Applying the infiltration in basin</p>	<p>Theoretical: Sprinkler irrigation system capacity</p> <p>Practical: infiltration in the basin method</p>	<p>Theoretical: Writing on the blackboard is a practical direct dialogue method: Assigning tasks reporting</p>	Short exams, assignments, discussions
12	2 Theoretical 3 practical	<p>Theoretical:b6 The student is able to identify the characteristics and determinants of drip irrigation, and estimate the coefficient of consistency</p> <p>Practical: a13The student is able to apply water consumption equations</p>	<p>Theoretical: Drip irrigation</p> <p>Practical: Water consumption - experimental methods</p>	<p>Theoretical: Chalkboard style</p> <p>practical : Applications in water consumption</p>	Short exams, assignments, discussions
13	2 Theoretical 3 practical	<p>Theoretical:a7 The student is able to know the types of trocars, vertical trocars, and the characteristics of open trocars</p> <p>Practical: a14Mathematical applications about the infiltration</p>	<p>Theoretical: Types of drain</p> <p>Practical: Estimating the Infiltration rate</p>	<p>Theoretical: Audio methods, blackboard</p> <p>Practical: Problems about calculating infiltration</p>	Short exams, assignments, discussions
14	2 Theoretical 3 practical	<p>Theoretical:b7 The student learns about covered drain and what is</p>	<p>Theoretical: Covered drain</p>	<p>Theoretical: The blackboard is a direct dialogue style</p>	exams

		the classification of drain according to the nature of their work Practical:a15 The student is able to identify what drain	Practical: drainage	cal : ing tasks and reporti	
15	2 Theoretical 3 practical	Theoreticalb8 By knowing the distance between the drain, the student will be able to know the depth of the drainage layer. Practical:a16 The student be able to understand and covered drain systems	Theoretical: Calculate the distance between the drain Practical: drain systems	Theoretical: Audio methods styl blackboard practical : Display posters assignments reports	Short exams, assignments, discussi

11. Course Evaluation

	Evaluation	Time of evaluation	Degree	Relative weight
1	Theoretical final report + practical experience reports	Theoretical week 15. Practical week 1-15	7Theoretical + 6Practical	13%
2	Quiz -1-	Week 3	4 Theoretical + 2 practical	6%
3 4	Midterm Exam	Week 9	10 theoretical + 5 practical	15%
5	Final practical test	Practical exams week	20%	20%
6	Final theoretical test	The week of theoretical exams	40%	40%
sum			100%	100%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Book on irrigation and drainage (Prof. Dr. La Khalil Ismail)
Main references (sources)	Irrigation, its basics and applications (Prof. Dr. N Ibrahim and Prof. Dr. Issam Khader Al-Hadithi)
Recommended books and references (scientific journals, reports...)	Mesopotamia Journal of Agriculture and Al-Anbar Journal of Agricultural Sciences
Electronic References, Websites	The World Health Organization, and the US Food and Drug Administration.

Theoretical subject teacher: Mooatasim Daood Sulayman agha



Practical subject teacher: Alia Abdul Latif Jassim



Chairman of the Scientific Committee: Prof . Dr. Muhammad Amin Al-Imam



Head of the Horticulture Department : Prof . Dr. Asmaa Muhammad Adel

