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 \ 9 \ 2023
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.agha & Noor Jamal Hussein Email: mooatasim@uomosul.edu.iq

8. Course Objectives	
- Enable the student to understand what is the science of irrigation what is the irrigation process - Enabling the student to become familiar with the classificatio irrigation water - Enabling students to appreciate irrigation competencies - Enable the student to schedule irrigation and know the water nee the crop - Enabling the student to know the different irrigation methods - Enable the student to learn about the characteristics of sprinkler drip irrigation	**practical:** **- Enable the student to recognize the mathematical relationships between soil parameters and knowledge the depth of water in the soil** **- The student will be able to estimate the moisture con 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 drain in the canals**

9. Teaching and Learning Strategies	
theoretical: - Interactive lectures - Brainstorming - Dialogue and discussion - Assigning tasks and reporting	practical: - Assigning group work to reveal leadership skills - Assigning tasks and reporting for each experiment

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretica 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, discussi
2	2 Theoretica 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 equivale depth of soil water	Theoretical: The blackboard is style of dialogue practical : Laboratory applica and reporting	Short exams, assignments, discussi
3	2 Theoretica 3 practical	Theoretical: a3The student is familiar w the standards adopted in evaluating the quality of irrigation water in terms of salinity, sodicity, and toxici Practical b9Laboratory work to estir soil moisture content	Theoretical: Standards adopted in evaluating the quality of irrigation wate practical : Estimating soil moisture conservation	Theoretical: Audio methods: wri on the blackboard practical : Assigning tasks and reporting	Short exams, assignments, discussi
4	2 Theoretica 3 practical	Theoretical: a4The student will be abl estimate irrigation efficiencies (efficiency of transportation, irrigation, storage, and homogeneity Practical:b10 The student c work on the pressure devic	Theoretical Irrigation efficiencies Practical: pressure device	Theoretical: The solution metho on the board Practical Laboratory work writing reports	Short exams, assignments, discussi
5	2 Theoretica 3 practical	Theoretical: b1Applications and solution examples of irrigation efficiencies and uniformity coefficient Practical: b11The studen able to estimate and calcu ready-made water	Applications and exampl of irrigation efficiencies Practical: Estimating fiel capacity and permanent wilting point	Theoretical: Examples on the bo practical : Make reports	Short exams, assignments, discussi
6	2 Theoretica 3 practical	Theoretical:a5 The student is able to learn about irrigation scheduling what water needs are Practical: a10The student c estimate water consumptio	Theoretical: Scheduling irrigation an water needs Practical: water consumption	Theoretical: The blackboard is a direct dialogue styl practical : Assigning tasks reports	exams,
7	2 Theoretica 3 practical	Theoretical:b2 The student learns the stage plant growth and the relat curve, as well as calculatin the number of days betwe	Theoretical: Plant growth stages, irrigation frequency	Theoretical: Audio methods, wri style on the blackbo practical :	Short exams, assignments, discussi

		one irrigation and another Practical: b12The student can estimate evaporation using evaporation basin	Practical: evaporation pa	Assigning tasks reporting	
8	2 Theoretica 3 practical	Theoretical:a6 The student is able to lear about the different method irrigation and the ability to understand the advantages surface irrigation Practical: b13The studer able to estimate w drainage	Theoretical: Different ways to add water Practical: Methods water measurements	Theoretical: Auditory methods 'whiteboard meth Practical: field observations	Short exams, assignments, discussi
9	2 Theoretical 3 practical	cal:b3 lent is familiar with the irrigation method with irrigation, its characteristic and estimating the depth o irrigation using the irrigati method Practical: a11The studen able to estimate w drainage	Theoretical: irrigation method Practical: Methods of measuring water - measuring facilities	Theoretical: Writing on the blackboard is a practical direct dialogue method: Assigning tasks reporting	Short exams, assignments, discussi
10	2 Theoretica 3 practical	Theoretical:b4 The student is able to learn about the advantages of sprinkler irrigation as well devices Practical: a12The student v be able to estimate rain in t field or laboratory	Theoretical: Sprinkler irrigation Partical : the tip	Theoretical: Audio methods, blackboard vork: field and labora work	Short exams, assignments, discussi
11	2 Theoretica 3 practical	Theoretical:b5 The student is able to estima the capacity of the sprinkle irrigation system, the capa of one sprinkler Practical: b14Applying the infiltration in bas	Theoretical: Sprinkler irrigation syst capacity Practical: infiltration in t basin method	Theoretical: Writing on the blackboard is a practical direct dialogue method: Assigning tasks reporting	Short exams, assignments, discussi
12	2 Theoretica 3 practical	Theoretical:b6 The student is able to ident the characteristics and determinants of drip irrigation, and estimate the coefficient of consistency Practical: a13The student i able to apply water consumption equations	Theoretical: Drip irrigation Practical: Water consumption - experimental methods	Theoretical: Chalkboard style practical : Applications in wa consumpti	Short exams, assignments, discussi
13	2 Theoretica 3 practical	Theoretical:a7 The student is able to kno the types of trocars, vert trocars, and the characteristics of open trocars Practical: a14Mathemati applications about the infiltration	Theoretical: Types of drain Practical: Estimating the Infiltration rate	Theoretical: Audio methods, blackboard Practical: Problems about calculating infiltration	Short exams, assignments, discussi
14	2 Theoretica 3 practical	Theoretical:b7 The student learns about	Theoretical: Covered drain	Theoretical: The blackboard is a	exams

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

11. Course Evaluation

	Evaluation	Time of evalution	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 F and Drug Administration.

Theoretical subject teacher: Mooatasim Daood Sulayman agha

Practical subject teacher: Noor Jamal Hussein

Chairman of the Scientific Committee: Prof. Dr. Arkan Muhammad Amin

Head of the Agricultural Machinery and Machinery Dep.; Nofal Issa Muhaimeed