Republic of Iraq

The Ministry of Higher Education

& Scientific Research

بسم الله الرحمن الرحيم

University:Diyala
College: Agriculture
Department: Soil Science and Water Resources
Stage: Fourth
Lecturer name: Ibrahim Ahmed Hedres
Qualification: Ph.D
Place of work: College of Agriculture

Flow up of implementation celli pass play

Course Instructor	Ibrahim Ahmed Hedres				
E-mail	ibraheeahmad@uodiyala.edu.iq				
Title	Irrigation systems technology				
Course Coordinator	First				
Course Objective	Science irrigation looking in irrigation water sources and methods to control it, exploit and delivery of agricultural fields and includes planning, design and implementation of irrigation facilities, transmission and distribution of irrigation water and to study ways to add them and calculate the water requirement of the plant through the study of water relationship, soil and climate in addition to the study of problems related to the addition of water problems to salinity and drainage and reclamation of soils.				
Course Description	Irrigation material includes teaching students how to calculate the channels discharge, whether or not lined or exposed as well as the water needs of the plant as well as the expense of transporting and distributing water to agricultural fields without any water losses as well as the expense of the ability of the pumps that transfer water from the rivers and down to the agricultural fields.				
Textbook	1- Irrigation, fundamentals and applications written by Dr. Nabil Ibrahim eltaif and Essam Hamza Khudair alhadith .1988 Ministry of Higher Education and Scientific Research - University of Baghdad. 2- Irrigation and drainage written by dr.laith Khalil Ismail . 2000 Ministry of Higher Education and Scientific Research - University of Mosul. 3- Design and management of field irrigation systems written by dr. Samir Mohammed Ismail .2002 College of Agriculture - Alexandria University. 4- Modern irrigation techniques and other topics in the water issue written by Essam Khudair alhadithi ,dr. Ahmed madlool Kubaisi and dr. Yass Khudair Hamza alhadithi.2010 Ministry of Higher Education and Scientific Research University of Anbar.				
External References	Iraqi academic scientific journals				
Course Assessments	Term Tests	Laboratory	Quizzes	Project	Final Exam
	(20%)	(15%)	(5%)	-	(60%)
General Notes	**None**				

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week	Date	Topics Covered	Practical Part
1		Introduction to Irrigation	Review, soil moisture content, methods of representing moisture percentage, solving mathematical problems.
2		Basic factors for designing a field irrigation system	Applications and exercises in the efficiency, sufficiency and consistency of irrigation
3		Water infiltration in the soil, factors affecting seepage, relationship between seepage and irrigation method, basic seepage rate	Measuring the infiltration, extracting the infiltration rate, cumulative infiltration and basic infiltration rate functions, applications and exercises in infiltration
4		Surface irrigation	Applications and exercises on the advance function and its relation to the infiltration functions, exercises on the concept of water balance in surface irrigation
5		Surface irrigation systems	Mathematical applications on strip irrigation system design
6		Furrow Irrigation, specifications, advantages, disadvantages	Measurement of imbibition in the furrow
7		Furrow Irrigation, design considerations, design equations	Applications and exercises about Furrow Irrigation
8		Basin irrigation, specifications, advantages, disadvantages	Applications and exercises on Basin irrigation design
9		Sprinkler irrigation, principles, advantages, disadvantages	Exercises on calculating sprinkler intervals for each arrangement
10		Sprinkler irrigation	Exercises on calculating irrigation consistency, mist losses and irrigation efficiency
11		Drip irrigation, definition, benefits,	Drip irrigation applications and

		disadvantages and problems, basic parts of drip irrigation system, dripper hydraulics, irrigation depth and irrigation interval, dripper selection, irrigation efficiency and consistency	exercises
12		Wave or pulse irrigation	Wave or pulse irrigation applications and exercises
13		Wave or pulse, advantages, disadvantages	Pump capacity calculation
14		Scientific trip	Scientific trip
15			

Instructor's signature
dr. Ibrahim Ahmed Hedres

15 / 1 / 2025

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Prof.dr.Raaed Ibrahim Khalil

15 / 1 / 2025