

## Course Description Form

1. Course Name :	
Irrigation	
2. Course Code:	
IRIG349	
3. Semester / Year:	
First semester 2023/2024	
4. Description Preparation Date:	
1/9/2023	
5. Available Attendance Forms:	
In presence	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
2 Theoretical +3 Practical / 3.5 Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Faris Akram Salih Al-Wazzan      Nour Jamal Hussein	
Email: <a href="mailto:dr.farisakram@uomosul.edu.iq">dr.farisakram@uomosul.edu.iq</a>	
8. Course Objectives	
Course Objectives	<p>1- Preparing students who have the ability to use modern irrigation methods and describe these methods accurately with the possibility of using them within Iraqi soils, which represent calcareous soils... and integrating these methods with drainage networks disposal of excess water.....</p> <p>2- Entering the agricultural sector with distinguished efficiency through participation in irrigation projects, modern irrigation techniques, and the use of the best methods in order to reduce water use within agricultural lands and reduce the risk of salt and desert..</p> <p>3- Directing students towards a desire to obtain better experiences when applying postgraduate studies..</p>



# 1. Teaching and Learning Strategies

**Theoretical:**  
 - Interactive lecture  
 - Brainstorming  
 - Dialogue and discussion  
 - Assigning tasks and reporting  
 - Presentations of models of irrigation and drainage networks

**Practical:**  
 - Assigning group work to reveal leadership skills  
 - Assigning tasks and reporting for each experiment  
 - He is assigned to prepare a report entitled from his own diligence and prepare it for discussion with  
 Students

# 2. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical 3 Practical	<b>Theoretical:</b> a1 :Explains the concept to the student Irrigation and relationships mathematical <b>practical :</b> a1 :Empowering the student to solve Equations	<b>Theoretical:</b> The concept of irrigation and the introduction to irrigation with mathematical relationships between the size and mass of soil components  <b>practical :</b> Mathematical relationships for soil components and the equivalent depth of soil water	<b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style  <b>practical :</b> Adapt tasks and reports	Conduct daily examinations. Assignment discussions
2	2 Theoretical 3 Practical	<b>theoretical:</b> a2 :Explains depth to the student The equivalent and its importance  <b>practical :</b> a2 :Explains to the student Fundamentals of humidity measurement	<b>theoretical:</b> Equivalent depth derivations with solving mathematical problems  <b>practical :</b> Methods for measuring soil moisture	<b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style  <b>practical :</b> Adapt tasks and reports	Conduct daily examinations. Assignment discussions
3	2 Theoretical 3 Practical  2 Theoretical 3 Practical	<b>Theoretical:</b> a3 :Explains the concepts of movement to the student  <b>practical :</b> a3 :Shows the student the measurement Field capacity	<b>theoretical:</b> Physical concepts of motion and its laws  <b>practical :</b> Measuring field capacity and permanent wilting point	<b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style  <b>practical :</b> Adapt tasks and reports	Conduct daily examinations. Assignment discussions



4	2 Theoretical 3 Practical	<p>And the writing point</p> <p><b>Theoretical:</b> a4 :Explains to the student Types of pumps agricultura</p> <p><b>practical :</b> a4 :Explains measurement methods using multiple methods</p>	<p><b>Theoretical:</b> Choosing the type of pump with examples</p> <p><b>practical :</b> Methods for measuring irrigation water discharge</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
5	2 Theoretical 3 Practical	<p><b>Theoretical:</b> b1 :Enabling the student to Irrigation water evaluation</p> <p><b>practical :</b> b1 :Shows mathematical applications weirs</p>	<p><b>Theoretical:</b> Evaluation of irrigation water quality</p> <p><b>practical :</b> Irrigation canal design</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
6	2 Theoretical 3 Practical	<p><b>Theoretical:</b> a5 :Shows the student importance Irrigation efficiencies</p> <p><b>practical :</b> a5 :Empowering understanding competencies Irrigation</p>	<p><b>Theoretical:</b> Irrigation efficiencies with example</p> <p><b>practical :</b> Types of irrigation efficiencies with solutions and examples</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
7	2 Theoretical 3 Practical	<p><b>Theoretical:</b> b2 :Enabling the student Understanding evaporation transpiration</p> <p><b>practical :</b> b2 Explains mett for measuring Water consumption</p>	<p><b>Theoretical:</b> evaporation and transpiration</p> <p><b>practical :</b> Water requirements measurements</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>

8	2 Theoretical 3 Practical	<p><b>Theoretical:</b> a6:Explains to student importance irrigation scheduling</p> <p><b>practical :</b> a6 :Explains the basics of irrigation scheduling</p>	<p><b>Theoretical:</b> Irrigation scheduling</p> <p><b>practical :</b> Methods of scheduling irrigation with solutions and examples</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
9	2 Theoretical 3 Practical	<p><b>Theoretical:</b> b3 :Shows the student importance Water requirement of crop</p> <p><b>practical :</b> b3 :b4 :Empower student to Calculate the plant's water requirement water</p>	<p><b>Theoretical:</b> Water requirement of the crop</p> <p><b>practical :</b> Calculate water requirements and solve examples</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
10	2 Theoretical 3 Practical	<p><b>Theoretical:</b> b4 :The student Knowledge of irrigation cycle</p> <p><b>practical :</b> b4 :Explains to student calculation of period between ritual and another</p>	<p><b>Theoretical:</b> Irrigation frequency Irrigation cycle</p> <p><b>practical :</b> Calculating irrigation quantities and irrigation cycle</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
11	2 Theoretical 3 Practical  2 Theoretical 3 Practical	<p><b>Theoretical:</b> b5 :The student shows how Water entry into the soil</p> <p><b>practical :</b> b5 :Shows the student methods</p>	<p><b>Theoretical:</b> Water Infiltration</p> <p><b>practical :</b> Infiltration measurement</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b></p>	<p>Conduct daily examinations. Assignment discussions</p>



12	2 Theoretical 3 Practical	<p>Instantaneous Infiltration measurement</p> <p><b>Theoretical:</b> b6 :Explains importance irrigation Surface</p> <p><b>practical :</b> b6 :Shows irrigation methods</p>	<p><b>Theoretical:</b> Surface irrigation methods</p> <p><b>practical :</b> Surface and subsurface irrigation</p>	<p>Adapt tasks and reports</p> <p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
13	2 Theoretical 3 Practical	<p><b>Theoretical:</b> a7 Shows sprinkler irrigation systems</p> <p><b>practical :</b> a7 Explains strip irrigation systems</p>	<p><b>Theoretical:</b> Strip irrigation</p> <p><b>practical :</b> Arrangement of strip irrigation and its types</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
14	2 Theoretical 3 Practical	<p><b>Theoretical:</b> b7 Shows Sprinkler Irrigation</p> <p><b>practical :</b> b7 Explains sprinkler irrigation system</p>	<p><b>theoretical:</b> Basin irrigation and sprinkler irrigation</p> <p><b>practical :</b> Arrangement and types of sprinklers</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>
15	2 Theoretical 3 Practical	<p><b>theoretical:</b> b8 Explains drip irrigation systems</p> <p><b>practical:</b> b8 Shows drip irrigation systems</p>	<p><b>Theoretical:</b> Drip irrigation</p> <p><b>practical :</b> Arrangement of drippers and their mechanism of operatio</p>	<p><b>theoretical:</b> Audio methods style Writing on the board Direct dialogue style</p> <p><b>practical :</b> Adapt tasks and reports</p>	<p>Conduct daily examinations. Assignment discussions</p>

### 3. Course evaluation

Relative weight %	Degree	Calendar appointment (weekly)	Calendar methods	ت
13%	7 Theoretical + 6 practical	Theoretically week (15) Practically week 1-15	Theoretical final report + practical experience reports	1
6 %	4+ Theoretical 2 practical	week (3)	Quiz(1)	2
15%	10 Theoretical+ 5 practical	week (9)	Exam Midterm (Theoretical and practical)	3
6%	4 + Theoretical 2 practical	week (12)	Quiz(2)	4
20%	20	Practical exam week	Final practical test	5
40%	40	Theory exam week	Final theoretical test	6
100%	100		Total	

### 4. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Irrigation... Dr. Issam Khudair Al-Hadithi
Main references (sources)	Irrigation and drainage book by Dr. Laith K
Recommended books and references (scientific journals, reports...)	SSSJ , WATER J .
Electronic References, Websites	<a href="https://doi.org/10.2136/sssabookser5.1.2ed">https://doi.org/10.2136/sssabookser5.1.2ed</a>

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