Course Description Form of Irrigation

1. Course Name:
Irrigation
2. Course Code:
IRRG306
3. Semester / Year:
First semester/ 2024-2025
4. Description Preparation Date:
15/1/2025
5. Available Attendance Forms:
Full time (theoretical lecture and practical lecture) weekly
6. Number of Credit Hours (Total) / Number of Units (Total)
5 hours (2 hours theoretical and 3 hours practical per week) for 14 weeks, number of units 3.5 units
7. Course Administrator's Name (Mention All, If More Than One Name)
Name: Prof.dr.Mohammed Ali Abood Email: Mohammed.Ali.Abood@uodiyala.edu.iq
8. Course Objectives

Course Objectives: Graduating students who are able to:	1- Irrigation science examines the sources of irrigation water a methods of controlling it, exploiting it, and delivering it to agricultural fields. 2- It includes planning, designing and implementing irrigation facilities 3- Transferring and distributing irrigation water and studying ways to add it 4- Calculating plant water needs by studying the relationship c water, soil and climate 5- Studying problems related to adding water, such as problem of salinization, drainage, and soil reclamation 6- Calculating the cost of maintaining irrigation and drainage projects as part of production costs

9. Teaching and Learning Strategies	
Strategy	In-person lectures for 14 weeks, including two monthly exams, daily exams, and scientific reports

10. Course Structure

Theoretical part

Week	Hours	Required learning outcomes	Unit or Subject	Learning Method	Evaluation Method
1	**2**	Irrigation concept, irrigation and its spread	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
2	**2**	Irrigation water sources	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
3	**2**	Irrigation water quality	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
4	**2**	Physical soil properties associated with irrigation	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
5	**2**	Water-soil relationship, soil moisture constants, water movement in soil, water infiltration	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
6	**2**	Water measurement	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
7	**2**	Plant water consumptive use	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
8	**2**	Water requirements and irrigation scheduling	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
9	**2**	Irrigation water transportation and distribution	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
10	**2**	Water movement in open pipes and channels	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
11	**2**	Design of earthen and lined irrigation channels	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
12	**2**	Irrigation adequacy, efficiency and consistency	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports

13	**2**	Traditional irrigation methods and modern irrigation methods	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
14	**2**	Scientific trip	**Irrigation**	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports

Practical part

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	**3**	Survey the land and draw a contour map.	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
2	**3**	Level measurement and calculation of excavation and backfilling quantity for irrigation canal	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
3	**3**	soil moisture measurement	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
4	**3**	Water measurement by different methods. Buoy, weir, manholes, Parshall flume, pump discharge.	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
5	**3**	Water infiltration measurement	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
6	**3**	Applications in water consumption calculation. CropWat program application in ET0 calculation	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
7	**3**	crop factor	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
8	**3**	Applications in calculating plant water requirements	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
9	**3**	Applications in calculating water quantity and irrigation intervals	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
10	**3**	Applications in calculating the sufficiency, efficiency and consistency of irrigation water distribution	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
11	**3**	Channel Design: Earthen Irrigation Channel	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
12	**3**	lined irrigation canal	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports

13	**3**	Pump capacity calculation	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
14	**3**	Scientific trip	**Irrigation**	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports

11. Course Evaluation
Examination Monthly & daily exams with discussion questions inside the lecture. The degree of participation in the questions related to the subject.

12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	Irrigation, its basics and applications, written by Dr. Nabil Ibrahim Al-Tayef and Dr. Issam Khudair Hamza Al-Hadithi, 1988, Ministry of Higher Education and Scientific Research - University of Baghdad Irrigation and drainage, written by Dr. Laith Khalil Ismail, 2000, Ministry of Higher Education and Scientific Research - University of Mosul Design and Management of Field Irrigation Systems, written by Dr. Samir Muhammad Ismail, 2002, Faculty of Agriculture - Alexandria University Modern irrigation technologies and other topics in the water issue, written by Dr. Issam Khudair Al-Hadithi, Dr. Ahmed Madloul Al-Kubaisi, and Dr. Yas Khudair Hamza Al-Hadithi, 2010, Ministry of Higher Education and Scientific Research - Anbar University
Main References (Sources)	Irrigation, its basics and applications, written by Dr. Nabil Ibrahim Al-Tayef and Dr. Issam Khudair Hamza Al-Hadithi, 1988, Ministry of Higher Education and Scientific Research - University of Baghdad
Recommended Books and References (Scientific Journals, Reports...)	Iraqi academic scientific journals
Electronic References, Websites	