

Faculty of Engineering & Technology

Irrigation and Drainage Engineering

Information :

Course Code : SCM 462

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Department of Structural Engineering & Construction Management

Instructor Information :

Title	Name	Office hours
Lecturer	Ahmed Mohamed Abdel Moniem Mohamed Soliman	
Assistant Lecturer	Nada Mohamed Abd El Hamid Ali Mohamed	
Teaching Assistant	Ahmed Taher Abdelhamed Mohamed Yousef	

Area Of Study :

At the end of this course, students will be able to:

- 1) Design different systems of irrigation such as (surface, sprinkler and dripper) irrigation.
- 2) Design sections and planning of canals. Also design systems of drainage and design wells.
- 3) Use the techniques, skills, and appropriate engineering tools, necessary for engineering practice.
- 4) Demonstrate knowledge of contemporary engineering issues.

Description :

Definitions of irrigation and drainage, Different sources of water for irrigation and its quality, Soil water plant relationship, Estimation of crop consumptive use, Introduction to the design of different irrigation systems: surface irrigation, sprinkler irrigation, drip irrigation, Introduction to the design of agricultural drainage system: tile drainage, surface drainage, and vertical drainage.

Course outcomes :

a. Knowledge and Understanding: :

- 1 - Define the basic principles of fluid mechanics, hydraulics, irrigation and drainage
- 2 - Identify the techniques for solving irrigation and drainage problems

b. Intellectual Skills: :

- 1 - Design canal and drain cross section
- 2 - Solve pipe network problems
- 3 - Solve pipe network problems

c. Professional and Practical Skills: :

- 1 - Use hydraulic laboratory devices
- 2 - Write practical reports.

d. General and Transferable Skills: :

- 1 - Work under pressure

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to Irrigation and Drainage Engineering, Water cycle and water resources in Egypt.	10	6	4
Soil-plant-relationships and water demands, Hydrologic cycle, Rainfall, evaporation, surface runoff.	15	9	6
Ground water flow, storage and infiltration, Surface irrigation methods, Irrigation system development in Egypt	15	9	6
An overview for the irrigation structures, River Nile hydrology, Drainage, types, factors influencing selection and design.	15	9	6
Drainage water reuse and precautions, Ground water.	10	6	4
Well design and pumps selection.	10	6	4

Teaching And Learning Methodologies :

Class Lectures

Tutorials

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	15.00		
Mid Term Examinations	25.00		
Final Examination	40.00		
Semester Work	20.00		

Recommended books :

- Irrigation and Drainage Engineering - , Ain Shams University, Mostafa Soliman, 1980
- Irrigation and Drainage Engineering . EAI- Saie Moh. Yasser, Fattoh Ehab 2010