

Faculty of Engineering & Technology

Hydraulic Engineering

Information :

Course Code : SCM 461

Level : Undergraduate

Course Hours : 4.00- Hours

Department : Department of Structural Engineering & Construction Management

Instructor Information :

Title	Name	Office hours
Associate Professor	Yasser Mohamed Sadek Abdel Aziz El Saie	6
Associate Professor	Yasser Mohamed Sadek Abdel Aziz El Saie	6
Assistant Lecturer	Reham Milad Kamel Samaan	
Teaching Assistant	Ahmed Taher Abdelhamed Mohamed Yousef	
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Area Of Study :

Upon successful completion of this course, the student should be able to: - Understand the basic concepts and main principles - Calculate the values of the essential terms - Apply Codes provisions
Regarding open channel specific energy rapidly and gradually flow pipes network water hammer pumps

Description :

Open channel flow: types of flow, conservation laws of mass and energy, specific energy concept, flow resistance in channels, sketching and calculations of water surface profile for gradually varied flow, design of cross sections in open channels, momentum equation and specific force concept, design of stilling basins downstream of gates and pipe outlets, physical models, Introduction to river engineering and sediment transport, Pumps: types and characteristics of pumps, pumps and pipeline systems, Hydraulics of groundwater: types of aquifers, groundwater flow.

Course outcomes :

a.Knowledge and Understanding: :

1 -	a1- Explain the principals of open channel
2 -	a2- Define the main terms of rapidly and gradually flow
3 -	a3- List the main items of pipes network
4 -	a4- Define the main terms of water hammer
5 -	a5- List the main items of pumps

b.Intellectual Skills: :

1 -	b1- Calculate the values of open channel
2 -	b2- Solve problems regarding specific energy
3 -	b3- Solve problems regarding rapidly and gradually flow
4 -	b4- Analyze the system of pipes network

5 -	b5- Solve problems regarding water hummer
6 -	b6- Analyze the system of pumps
c. Professional and Practical Skills: :	
1 -	c1- Draw neat details of pipes network
2 -	c2- Prepare technical reports for pumps
d. General and Transferable Skills: :	
1 -	d1- Work under stress

Course Topic And Contents :			
Topic	No. of hours	Lecture	Tutorial / Practical
open channel	12	6	6
specific energy	12	6	6
rapidly and gradually flow	18	9	9
Pipes Network	18	9	9
Water Hummer	12	6	6
Pumps	12	6	6
Revision	6	3	3

Teaching And Learning Methodologies :
Interactive Lec.
Discussion
Problem Solving
Report / Presentation

Course Assessment :			
Methods of assessment	Relative weight %	Week No	Assess What
Final Examination	40.00		
Mid- Exam I, II	30.00		
Quizzes / Assig.	15.00		
Report / Present	15.00		

Course Notes :
Lecture Notes

Recommended books :
Water Hwang, N. H. C.; "Fundamentals of Hydraulic Engineering Systems". Prentice Hall, 1981
French R.H.; "Open Channel Hydraulics"; McGraw Hill, 1984
Chow V.T.; "Open Channel Hydraulics"; McGraw Hill, 1977
Ray Linsley, Joseph Franzini, David Freyberg, George Tchobanoglous; "Water Resources Engineering", 1988

