FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Engineering & Technology

Fluid Mechanics

Information :

Course Code :	MPR 252	**Level :**	Undergraduate	**Course Hours :**	4.00- Hours

Department : Department of Structural Engineering & Construction Management

Instructor Information :

Title	Name	Office hours
Lecturer	Mohamed Ahmed Mahmoud Karali	4
Lecturer	Mohamed Ahmed Mahmoud Karali	4
Assistant Lecturer	Zakaria Mostafa Abdo Salim Marouf	2
Teaching Assistant	Mahmoud Mohamed Khalaf Ahmed	2

Area Of Study :

1. Differentiate between fluids and other substances and classify different fluid flow types.
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2. Calculate the forces acting on dams and gates, aiding in the design of such systems.
3. Use continuity, Bernoulli and energy's equations to design different engineering systems.
4. Measure different fluid properties and analysis different fluid systems in laboratory and assess different losses in piping networks.

Description :

Introduction and fundamental concepts of fluids, Statics of fluids, Characterization of fluid flow, Integral equations, Basic equations: conservation of mass, momentum and energy, Bernoulli's equation, Application on momentum and Bernoulli's equations, Viscous flow in ducts and pipes, Basics of dimensional analysis and dynamic similarity.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	a1- List the main items of properties of fluids
2 -	a2- Define the main terms of luid statics
3 -	a3- Describe the main concept of fluid kinematics
4 -	a4- Describe the main concept of fluid dynamics
5 -	a5- Explain the principals of internal flow
6 -	a6- Explain the principals of external flow
b.Intellectual Skills: :	
1 -	b1- Calculate the values of properties of fluids
2 -	b2- Solve problems regarding luid statics

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3 -	b3- Calculate the values of fluid kinematics
4 -	b4- Calculate the values of fluid dynamics
5 -	b5- Analyze the system of internal flow
6 -	b6- Analyze the system of external flow
7 -	b7- Calculate the values of momentum equation
c.Professional and Practical Skills: :	
1 -	c1- Proceed test steps of the fluid dynamics
2 -	c2- Prepare technical reports for internal flow
d.General and Transferable Skills: :	
1 -	d1- Cooperate and communicate effectively

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
fluid statics	12	6	6
fluid kinematics	12	6	6
fluid dynamics	12	6	6
properties of fluids	12	6	6
internal flow	12	6	6
external flow	12	6	6
momentum equation	12	6	6
Revision	6	3	3

Teaching And Learning Methodologies :

Interactive Lec
Discussion
Problem Solving
Lab Exper.
Project
Report / Present

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	10.00		
Final exam	40.00		
In class quizzes and attendance	10.00		
Midterm exams	30.00		
Participation (Lab reports, Research activity and Oral Exam)	10.00		

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