

**TENTATIVE TEACHING PLAN**

Dec.01.2001

DEPARTMENT/INSTITUTE/DIRECTORATE: CIVIL ENGINEERINGDepartment: **Civil Engineering**Name of Teacher: **Prof. Dr. Khalifa Qasim Laghari**Subject: **Fluid Mechanics & Hydraulics** Course Code: **CE227**Batch: **23CE (B)** Year: **2nd** Semester: **3rd**Semester Starting Date: **15-07-2024**Semester Suspension Date: **06-11-2024****Course Learning Outcomes (CLOs):** Upon successful completion of the course, the student will be able to:

CLO No.	Description	Taxonomy Level	Linking to PLOs
1	DESCRIBE the concepts related to fluid statics, kinematics, dynamics and simulation model of a real hydraulic structure.	C2	1
2	SOLVE problems related to various open channel x-sections and flow based on hydraulic energy & momentum principles.	C3	2

S. #	TOPICS	CLO	No. of Lecture Required
Properties of Fluid			
1.	Introduction of the subject	1	1
2.	Dimensions and system of Units	1	1
3.	Properties of Fluid	1	3
4.	Problems on Properties of fluid	1	2
Fluid Statics			
5.	Fluid Pressures, Pressure Heads, and different types of pressures.	1	1
6.	Equipment's for pressure measurement	1	1
7.	Problems on Pressure and equipment's	1	1
8.	Hydrostatic pressure, Buoyancy and Stability of floating bodies	1	2
9.	Problems on Buoyancy	1	2
Fluid Kinematics			
10.	Fluid Kinematics: uniform and non-uniform flows.	1	2
Fluid Dynamics			
11.	Continuity Equation	1	2
12.	Energy Equation / Bernoulli's Equation its Applications	1	4
Hydraulic Similitude			
13.	Dimensional Analysis	1	1
14.	Buckingham's π -theorem & its application	1	1
15.	Model analysis based on Reynold's & Froude's number	1	1
16.	Geometric, kinematic & hydraulic similarities, Dimensional less numbers & their significance	1	1
Open Channel Flow and its Classifications			
17.	Open Channel Flow and its Classifications	2	2
18.	States and regimes of flow	2	2

19.	Chezys's and Manning's velocity equations	2	2
20.	Problems on Chezys's and Manning's velocity equations	2	3
Design of Open Channels and Their Properties			
21.	Geometry and Design of Open Channels and Their Properties	2	3
22.	Design of most efficient, effective and economical open channel sections	2	3
Energy and Momentum Principles			
23.	Energy and Momentum Principles and their applications	2	1
24.	Hydraulic jump and its applications	2	3
Flow Rate Measurement in Open Channels			
25.	Measurement of discharge through weirs, modular and non-modular venturi-flumes.	2	2
Introduction to subject relevant software's			
26.	Introduction to MOD Flow	2	1
	TOTAL	48	

Signature of Teacher:

Dated: 10-09-2024

Remarks by DMRC: APPROVED

Signature of Chairman:

Dated: 18-09-2024