



**TENTATIVE TEACHING PLAN (THEORY)**

Department: **Civil Engineering**

Name of Teacher: **Engr. Abdul Qudoos Malano**

Subject: **Applied Hydraulics** Course Code: **CE241** Batch: **21CE(A+D)**

Year: **2<sup>nd</sup>** Semester: **2<sup>nd</sup> (4<sup>th</sup>)**

Semester Starting Date: **03-07-2023**

Semester Suspension Date: **20-10-2023**

**Course Learning Outcomes (CLOs):** Upon successful completion of the course, the student will be able to:

CLO	Description	Taxonomy Level	PLO
1	ANALYZE states of flow with respect to water surface and channel bed profiles due to sediment transport in open channels.	C4	2
2	DESIGN effective solution (flow computation) of pipes looping, branching, network and water hammer problems.	C6	3

S #	Topic	CLO's	No: of lecture/hrs. required
1.	Introduction to the subject, Course outline, Reference books	1	1
2.	Gradually varied flow in Open Channels	1	2
3.	Dynamic equation of Gradually Varied Flow (GVF)	1	3
4.	Classification of channel bed slopes	1	1
5.	Classification of surface profiles	1	1
6.	Characteristics of flow profiles	1	1
7.	Computation of GVF	1	3
8.	Sediment Transport in open channels	1	1
9.	Types of sediment loads	1	1
10.	Initialization of sediment movement	1	1
11.	Bed deformation in alluvial stream	1	1
12.	Rate of bed loads	1	1
13.	Meyer Peter Equation & Einstein's Equation	1	3
14.	Important terms, definition and principal components of a hydro-electric schemes	1	3
15.	Water hammer & its Problems	2	3
16.	Intro. to pipe flow, Chezy's and Darcy's equation, major and minor losses in pipes, Equivalent diameter of compound pipes and pipes in parallel.	2	3
17.	Problems on flow through pipes	2	2
18.	Looping and Branching pipes	2	2
19.	Pipe network & Problems	2	2
20.	Steady incompressible flow through pressure conducts	2	1
21.	Turbulent flow through pipes	2	1
22.	Universal velocity distribution and Prandtil's mixing length theory	2	2
23.	Impulse turbine	2	2
24.	Reaction turbine	2	2
25.	Centrifugal pump	2	2
26.	Reciprocating pump	2	3
<b>TOTAL</b>			<b>48</b>

Signature of Teacher:

Dated: 20-06-2023

Remarks of DMRC: **APPROVED**

Signature of Chairman

Dated: 01-08-2023