Course Syllabus (Academic Year 2022)
School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAED 229 Hydraulic
   Credit (3 Hour) : 3(3-0-6)
2. **Program Name** : Bachelor of Environment Engineering and Disaster Management
3. **Course Module** : Specific course
   Pre/co-requisite : none
4. **Course Semester** : 2/2022
5. **Class Schedule & Venue** : Lecture room
   Class Coordinator :
   1. Assist.Prof.Dr.Yutthana Phankamolsil
      Phone: (66) 81 695 4621
      Email: yutthana.pha@mahidol.ac.th
6. **Course Description**

Fluid statics; fluids in motion and fluid flow principles; flow resistances; flow in closed conduits; flows in open channels; flow measurement; dimensional analysis and similitude; unsteady flow; mathematical equation on hydrodynamics.

7. **Course Learning Outcomes (CLOs)**

(1) remember the definition and principles of hydraulic.

(2) analyze and solve hydraulic problems in the fluid statics, fluid dynamic, fluid kinematic, pipeline and open channel flow.

(3) solve the hydraulic problems with discipline, punctuality and honesty

(4) communicate by speaking, explaining hydraulic problems to group member correctly.

8. **Instructor**

Assist.Prof.Dr.Yutthana Phankamolsil +66 816954621, Email: yutthana.pha@mahidol.ac.th

8.1 Office Hours : 12:00 Noon – 15:00 PM, THU, FRI

8.2 Office : L321 Laboratory Building

8.3 **Course Website**

(1) the classroom name is KAED229 in Google Class Room. student have to register google account (xxxx.mahidol.edu) under Mahidol license.

(2) line group name is KAED229_2020

9. Course Outline

Week	Date	Contents	Teaching & Learning Method	Instructor
1	9 Jan 23	Introduction to teaching and learning process - Course Learning Outcomes (CLOS) - Course outline - Course assessment - Grading system	T1	YP
2	13 Jan 23	Properties of Fluid I (Introduction of Fluid Mechanics)	T1, T2, T3	YP
3	23 Jan 23	Fluid Statics I	T1, T2, T3	YP
4	27 Jan 23	Fluid Statics II	T1, T2, T3	YP
5	30 Jan 23	Forces and Submerged Area	T1, T2, T3	YP
6	3 Feb 23	Dam	T1, T2, T3	YP
7	6 Feb 23	Buoyancy and Flotation	T1, T2, T3	YP
	17 Feb 23	Mid-term Examination		
8	20 Feb 23	Fundamentals of Fluid Flow	T1, T2, T3	YP
9	24 Feb 23	Kinematic of Fluid Motion	T1, T2, T3	YP
10	20 Mar 23	Pipeline System I	T1, T2, T3	YP
11	23 Mar 23	Pipeline System II	T1, T2, T3	YP
12	10 Apr 23	Open Channel Flow I	T1, T2, T3	YP
13	17 Apr 23	Open Channel Flow II	T1, T2, T3	YP
14	21 Apr 23	Flood Routing	T1, T2, T3	YP
15	1 May 23	Dimensional Analysis	T1, T2, T3	AB
		Final Examination		

Remark: YP (Assist.Prof.Yutthana Phankamolsil); AB (Assist.Prof.Arika Bridhikitti)
T1 (Power point), T2 (Practice), T3 (Assignment)

10. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Weight Distribution (%)
1	Midterm examination	Exam will cover the content from the previous weeks.	1, 2	30
2	Final examination	Exam will cover the content from the previous weeks.	1, 2	30
3	Quizzes	Exam will cover the content from the previous weeks.	1, 2	20
4	Assignments	Exam will cover the content from the previous weeks.	2	10
5	Class participation	Student must attend class more than 80% of course.	1, 2	10
				100

11. Grading System

This course use the following 8 point grading system

Grade	A	B+	B	C+	C	D+	D	F
Percentage (%)	80-100	75-79	70-74	65-69	60-64	55-59	50-54	0-49
Description	Excellent	Very Good	Good	Fairly Good	Fair	Poor	Very Poor	Fail
GPA	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0.0

12. Reference

Simon, A.L., Hydraulic, 3 rd ed, John Eiley & sons, 2010, 491pp.