



HASAN KALYONCU UNIVERSITY
Faculty of Engineering
Course Description Form

COURSE: Hydraulics				
CODE: CE372	SEMESTER: SPRING			
LANGUAGE: ENGLISH	TYPE: COMPULSORY			
PRE-REQUISITES: - CO-REQUISITES: -	THEORY	PRACTICAL	CREDIT	ECTS
WEEKLY HOURS: 3	3	0	3	4

CONTENT OF THE COURSE:

Fluid flow concepts and measurements; Dimensional analysis, similitude and hydraulics models; Flow of incompressible fluids in pipelines; Pipe network analysis; Pump-pipeline system analysis and design, Steady open channel flow.

OBJECTIVE OF THE COURSE:

To enable students to understand and solve the problems of pipe flow and open channel flow. Also, the student will be able to analyze the specific energy and the hydraulic jump through open channels in addition to the Back water profiles.

WEEKLY SCHEDULE

Week	Topics
1	Course Description
2	Dimensional Analysis
3	Fluid Properties and Hydraulic Units
4	Flow of Fluids and their Measurements
5	Flow of Incompressible Fluids in Pipes
6	Pipe Network line Analysis I
7	Pipe Network line Analysis II
8	Mid-term Exam
9	Pump pipeline Systems and Analysis
10	Open Channel Hydraulics I
11	Open Channel Hydraulics II
12	Hydraulic Jump and Rapidly Varied Flow
13	Gradually Varied Flow
14	General Evaluation

TEXTBOOK:

REFERENCE BOOKS

- Brater, Ernest F, King, Horace Williams, Lindell, James E, Wei, C.Y. (1996). *Handbook of Hydraulics 7th edition*, Publisher: Mc Graw Hill.
- Featherstone, R.E, Nalluri, C. (1998). *Civil Engineering Hydraulics 3rd Edition*, Publisher: Blackwell Science, USA.

EVALUATION SYSTEM:		
IN-TERM STUDIES	QUANTITY	PERCENTAGE (%)
Midterm Exam	1	40
Homework	4	10
Laboratory works		
Quiz		
Final Exam	1	50
TOTAL		
CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE		
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		
TOTAL	6	100

COURSE CATEGORY:	PERCENTAGE (%)
Mathematics and Basic Sciences	
Engineering	50
Engineering Design	50
Social Sciences	

TABLE OF ECTS / WORKLOAD:			
Activities	QUANTITY	Duration (Hour)	Total Workload
Course Duration	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	4	56
Laboratory works			
Mid-term	1	2	2
Final examination	1	2	2
Homework	4	4	16
Quiz			
Total Work Load			115
Total Work Load / 30			3,8
ECTS Credit of the Course			4

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
LO1	2	2	0	0	2	0	0	0	0	0	0
LO2	2	2	0	0	2	0	0	0	0	0	0
LO3	2	2	0	0	2	0	0	0	0	0	0
LO4	2	2	0	0	2	0	0	0	0	0	0
	PO: Program Outcomes LO: Learning Outcomes Values: 0: None 1: Low 2: Medium 3: High										

INSTRUCTOR(S):	Asst.Prof.Dr. H.Çağın Kılınç
FORM PREPARATION DATE:	22.05.2019

LEARNING OUTCOMES OF THE COURSE:	PROGRAM OUTCOMES:
<p>LO1: To study the application of dimensional analysis to the hydraulics problems.</p> <p>LO2: To present the principles of model theory.</p> <p>LO3: To analyse the basic equations and engineering applications of closed conduit flows.</p> <p>LO4: To present the basic equations and engineering applications of open channel flows.</p>	<p>PO1: Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.</p> <p>PO2: Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.</p> <p>PO3: Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.</p> <p>PO4: Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.</p> <p>PO5: Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.</p> <p>PO6: Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.</p> <p>PO7: Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.</p> <p>PO8: Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.</p> <p>PO9: Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.</p> <p>PO10: Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.</p> <p>PO11: Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p>