



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Open Channel Hydraulics II							
Course Code		ZTY610		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	6	Workload	150 (Hours)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		Review of basic concepts of fluid flow, types of flow, states of flow, equations of motion; Energy principle in open-channel flow, transition problem, specific energy, non-rectangular channel sections; Momentum equation in open-channel flow, hydraulic jump, specific force; Critical flow, critical flow applications, flow measurement; Uniform flow, formulae, Manning's n, uniform flow computations for prismatic and compound irregular cross-sections; Design of channels for uniform flow, nonerodible channels, erodible channels; Gradually varied steady flow, classification and computation of flow profiles, the discharge problem, computer applications; Flow around bridge piers and flow through culverts; Storm sewer design; Unsteady flow, equations of motion, numerical solutions, kinematic wave approximation, the method of characteristics							
Course Content		Basic concept, flow types, regimes of flow, open channel geometry, energy of open channel, channel design in uniform and non-uniform flow							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study, Project Based Study, Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Hydraulics of Open Channel Flow Sergio Montes
2	Environmental Hydraulics for Open Channel Flows, First Edition Hubert Chanson

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction of open channel flow
2	Theoretical	Flow types
3	Theoretical	Continuity, momentum and energy equations
4	Theoretical	Specific energy and minimum energy
5	Theoretical	Flow regimes
6	Theoretical	Computations for prismatic and compound irregular cross-sections
7	Theoretical	Canal design and automation applications
8	Theoretical	Gradually varied flow and irregular cross-sections
9	Intermediate Exam	Midterm exam
10	Theoretical	Classification and computation of flow profiles
11	Theoretical	Computation techniques for gradually varied flow
12	Theoretical	Back-water surface profile computation in EXCEL
13	Theoretical	Open channel flow models and HEC-2
14	Theoretical	Gates in open channels and automated radial gates
15	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	2	70
Lecture - Practice	14	2	2	56
Midterm Examination	1	8	2	10



Final Examination	1	12	2	14
Total Workload (Hours)				150
[Total Workload (Hours) / 25*] = ECTS				6
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Open channel flow and its characteristics
2	Open channel design
3	Open channel classification
4	Flood routing in open channel
5	To learn open channel flow models

Programme Outcomes (Agricultural Structures and Irrigation Doctorate)

1	Ability to analyze, synthesize and evaluate different forms of scientific knowledge in the field of studies
2	Approach to information systematically, and gain skills related to their field the research methods
3	Innovative science to develop a scientific method or a method that is known to practice in their field
4	Ability to organize and manage the project and advanced scientific research
5	Advanced technologies, find solutions to engineering problems taking advantage of the software and model approaches
6	Creative, unbiased and critical thinking
7	A topic in the field of written, verbally and visually as the ability to express
8	Ability to publish in refereed journals National and international the results of studies

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P2	4	5	5	4	4
P3	4	5	4	5	5
P4	4	4	4	4	4
P5	5	5	5	4	4
P6	3	3	3	3	3
P7	3	4	4	4	4
P8	1	1	1	1	1

