

**ECTS**  
**Course information in english**

**General course information:**

<b>Course title:</b>	Water Resources Management	<b>Course code:</b>	CE08_H05
<b>Credits:</b>	3	<b>Work load (hours):</b>	90
<b>Course level:</b>	Undergraduate <input checked="" type="checkbox"/>	Graduate	<input type="checkbox"/>
<b>Course type:</b>	Mandatory <input checked="" type="checkbox"/>	Selective	<input type="checkbox"/>
<b>Course category:</b>	Basic <input type="checkbox"/>	Orientation	<input checked="" type="checkbox"/>
<b>Semester:</b>	G	<b>Hours per week:</b>	4
<b>Course objectives (capabilities pursued and learning results):</b>			
The students learn how to design water resources management projects, to calculate a water volumetric budget, to design water resources management plans at basin level.			
<b>Prerequisites:</b>			
<ul style="list-style-type: none"> <li>• Hydraulics</li> <li>• Groundwater Hydraulics</li> <li>• Water supply systems</li> <li>• Hydrology</li> </ul>			

**Instructor's data:**

<b>Name:</b>	Nikitas Mylopoulos
<b>Level:</b>	Associate Professor
<b>Office:</b>	114
<b>Tel. - email:</b>	24210 74162 <a href="mailto:nikitas@uth.gr">nikitas@uth.gr</a>
<b>Other tutors:</b>	

**Specific course information:**

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Introduction – The water resources crisis	4	1
2	Water scarcity: Overview and analysis of the phenomenon	4	1
3	Water Demand Management. Cost accounting and pricing	4	1

4	Introduction to the design and analysis of water resources systems. Analysis methods. Objectives for water resources design.	4	1
5	Design models. Decision models, The Decision Analysis Method	4	1
6	Optimisation methods. Linear Programming	4	1
7	Optimisation methods. Integer Programming	4	2
8	Optimisation methods. Dynamic Programming	4	2
9	Optimisation methods. Non Linear Programming.	4	2
10	Probabilistic approach, stochastic simulation and time series.	4	2
11	Conjunctive use of surface and groundwater resources.	4	2
12	Optimisation methods software.	4	2
13	Application for an integrated management study at the level of the hydrologic basin	4	2
14	Application for an integrated management study at the level of the hydrologic basin	4	2

<b>Additional hours for:</b>			
<b>Class project</b>	<b>Examinations</b>	<b>Preparation for examinations</b>	<b>Educational visit</b>
5	3	4	

<b>Suggested literature:</b>
1. N. Mylopoulos, "Water Resources Management", University of Thessaly 2. D. Tolikas, "System analysis", Aristotle University of Thessaloniki

<b>Teaching method (select and describe if necessary - weight):</b>		
Teaching	<input checked="" type="checkbox"/> Lectures covering the theoretical part of the course	50%
Seminars	<input type="checkbox"/>	.....%
Demonstrations	<input type="checkbox"/>	.....%

Laboratory	<input type="checkbox"/>	.....%
Exercises	<input checked="" type="checkbox"/> Solving of exercises – practical applications	50%
Visits at facilities	<input type="checkbox"/> Municipal water authorities – Reservoirs – Work site of pipe placing	%
Other ( <i>describe</i> ): 1. Students make a presentation on a modern water crisis problem based on internet data 2. Students solve an optimization project. Lecturer corrects the project giving advice concerning the proper way of designing	<input checked="" type="checkbox"/>	beyond teaching hours
Total		100%

<b>Evaluation method (<i>select</i>)- weight:</b>				
	<u>written</u>	<u>%</u>	<u>Oral</u>	<u>%</u>
Homework	<input type="checkbox"/>		<input type="checkbox"/>	
Class project	<input checked="" type="checkbox"/>	20	<input type="checkbox"/>	
Interim examination	<input type="checkbox"/>		<input type="checkbox"/>	
Final examinations	<input checked="" type="checkbox"/>	80	<input type="checkbox"/>	
Other ( <i>describe</i> ): .....	<input type="checkbox"/>		<input type="checkbox"/>	