



COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Technology		
ACADEMIC UNIT	Department of Environmental Sciences		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	AE809	SEMESTER	8th
COURSE TITLE	WATER RESOURCES MANAGEMENT		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS		CREDITS
Teaching Hours		3	3
COURSE TYPE	Special background		
PREREQUISITE COURSES	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://eclass.uth.gr/courses/ENV_U_152/		

(2) LEARNING OUTCOMES

Learning outcomes
<p>The aim of the course is to familiarize students with the basic principles of water resources management. The increasing pressures on the aquatic environment makes it necessary to implement sustainable water resources development and management policies, through the design, implementation and optimal operation of infrastructure projects and interventions in the management of both water supply and demand, e.g. through water conservation and reuse measures. A rational development policy must take into account the management of extreme phenomena and crises, such as the problems of water scarcity and floods, but also longer-term environmental goals, such as the long-term protection of water and related ecosystems, the improvement of water quality and of its ecological situation, as well as the gradual reduction of discharged pollutants and the progressive elimination of toxic waste.</p> <p>Upon successful completion of the course, students will have acquired the necessary cognitive background, skills and competence, and will be able to:</p> <ul style="list-style-type: none">• Design water resources management projects.• Calculate a water volumetric budget.• Design water resources management plans at basin level.• Engage in future work and deepen their understanding of Water Resources Management.
General Competences
<ul style="list-style-type: none">• Search for, analysis and synthesis of data and information using appropriate technologies• Decision-making• Working independently• Team work• Criticism and self-criticism• Production of free, creative and inductive thinking• Environmental awareness

(3) SYLLABUS

<ul style="list-style-type: none">• Introduction – The water resources crisis.• Water resources and utilization projects.• Introduction to the design and analysis of water resources systems. Analysis methods.• Objectives for water resources design.• Assessment and management of uncertainty with simulation techniques.• Sustainable development and water management in a regime of uncertainty.• Multi-criteria analysis.

- Decision support systems in water resource management problems.
- Combined water and energy management.
- Watershed software: Methodological framework and applications.
- Extreme hydrological events and extreme conflicting interests in water management.
- Drought Management – The Persistent Drought of 1987-1994.

(4) TEACHING and LEARNING METHODS – EVALUATION

DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<ul style="list-style-type: none"> • Use of PowerPoint slides • View material in video • Visiting and using material from websites • Communication with students via e-mail • Use of asynchronous distance learning (e-class) 	
TEACHING METHODS	Activity	Semester workload
	Lectures	39
	Study and analysis of bibliography	26
	Essay writing and presentation preparing	10
	Course total (25 hours workload per credit)	75
STUDENT PERFORMANCE EVALUATION	<p>Students' performance is evaluated in the Greek language. The final grade is determined by:</p> <ul style="list-style-type: none"> • A written exam (at the end of the semester) that contributes 70% to the final grade, applying one or more of the following evaluation methods: Multiple choice questions, short-answer questions, problem solving. • Students' participation in laboratory practice activities and the preparation and delivery of related assignments during the semester that contribute 30% to the final grade. <p>Final Grade = 70% Exam Grade + 30% Assignments Grade</p>	

(5) ATTACHED BIBLIOGRAPHY

- Grigg, Neil S. (1996) *Water Resources Management*. New York: McGraw-Hill.
- Loucks, D.P., van Beek, E., Stedinger, J.R., Dijkman, J.P.M., Villars, M. T. (2005) *Water Resources Systems Planning and Management, An Introduction to Methods, Models and Applications*. Studies and Reports in Hydrology. Paris: UNESCO Publishing.
- Mays, L.W., Tung, Y.K. (1992) *Hydrosystems Engineering and Management*. New York: McGraw-Hill.