

COURSE OUTLINE

1. GENERAL

SCHOOL	School of Engineering		
DEPARTMENT	Department of Civil Engineering/ Master Program 'Hydrometeorological Disasters Program		
LEVEL OF STUDIES	7		
COURSE CODE	Y-YKA	SEMESTER	1 st
COURSE TITLE	Hydrometeorology - Hydrology and Climate Change		
TEACHING ACTIVITIES <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>	TEACHING HOURS PER WEEK	ECTS CREDITS	
Lectures	3	6	
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
COURSE TYPE <i>Background, General Knowledge, Scientific Area, Skill Development</i>	Scientific Area		
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	Greek/ English		
COURSE OFFERED TO ERASMUS STUDENTS:	NO		
COURSE URL:	https://eclass.duth.gr/courses/1021376/		

2. LEARNING OUTCOMES

Learning Outcomes <i>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.</i>
Once the course is completed, participants will be able to: <ul style="list-style-type: none"> • Be able to manage processes carried out in the atmosphere and hydrosphere. • Understand and quantify the impacts of climate change on the hydrological cycle. • Be familiar with data from measurements and simulations of the water phases in the hydrological cycle. • manage meteorological and hydrological data. • Make forecasts of future stress events and provide counseling. • Implement the appropriate model for simulation of hydrological processes. • To evaluate and design various water projects. • Propose solutions and proposals for water management. • Be able to shape the flow processes into porous media. • To understand the processes of underground hydrology. • Evaluate surface hydrological processes in the rainfall runoff. • Understand and explain the multi-functionality of river basins as well as their integrated design and management.
General Skills <i>Name the desirable general skills upon successful completion of the module</i>

<p>Search, analysis and synthesis of data and information, ICT Use Adaptation to new situations Decision making Autonomous work Teamwork Working in an international environment Working in an interdisciplinary environment Production of new research ideas</p>	<p>Project design and management Equity and Inclusion Respect for the natural environment Sustainability Demonstration of social, professional and moral responsibility and sensitivity to gender issues Critical thinking Promoting free, creative and inductive reasoning</p>
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- Search, analysis and synthesis of data and information
- Production of new research ideas
- Project design and management
- Respect for the natural environment
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

1. Basic principles governing the Earth's climate system and air-hydrosphere interactions. Presentation of the radiation and water balance in the climate system.
2. Introduction to the concept of climate variability and climate change. Natural and anthropogenic mechanisms of climate change. Global climate trends and extreme phenomena. Climate change scenarios and predictions for the future.
3. Estimation of maximum possible precipitation.
4. Estimation of evaporation.
5. Hydrometeorological prediction-supply models.
6. Presentation of the hydrological cycle with emphasis on the hydrological aspect.
7. Hydrological prognosis using basin models
8. Hydrologic simulation using rainbow curves.
9. Report the impacts of climate change on hydrology through rainfall in river basins.
10. Introduction to river basin management, water resources, land-use and agriculture runoff, groundwater, electricity generation, drought response.
11. Technical projects for the management of water diet.

4. LEARNING & TEACHING METHODS - EVALUATION

<p>TEACHING METHOD <i>Face to face, Distance learning, etc.</i></p>	Distance learning	
<p>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i></p>	<p>Use of ICT in Teaching, and Communication with students</p> <ul style="list-style-type: none"> • Digital slides • videos • MsTeams/ e-class, webmail 	
<p>TEACHING ORGANIZATION <i>The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.</i></p> <p><i>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i></p>	<p>Activity</p>	<p>Workload/semester</p>
	Lectures	39
	Final project	60
	Bibliographic research & analysis	78
	Final examination	3
	TOTAL	180
<p>STUDENT EVALUATION <i>Description of the evaluation process</i></p>	Written Assignment, 100%	

Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others

Please indicate all relevant information about the course assessment and how students are informed

5. SUGGESTED BIBLIOGRAPHY

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Angelides P., Paschalidou A., Papaioannou G., Papanizos S., Varlas G.
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Supervisors: (1)	YES
Evaluation methods: (2)	Written Assignment (100%)
Implementation Instructions: (3)	Written assignment should be submitted via eclass on a specified date.