

## COURSE OUTLINE

### 1. GENERAL

<b>SCHOOL</b>	SCHOOL OF ENVIRONMENT AND AGRICULTURAL ENGINEERING		
<b>ACADEMIC UNIT</b>	DEPARTMENT OF NATURAL RESOURCES DEVELOPMENT AND AGRICULTURAL ENGINEERING		
<b>LEVEL OF STUDIES</b>	Undergraduate (elective course)		
<b>COURSE CODE</b>	<b>196</b>	<b>SEMESTER</b>	<b>8<sup>th</sup></b>
<b>COURSE TITLE</b>	Special Topics in Irrigation		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
<b>Theory: Lectures</b>	2		
<b>Laboratory:</b>	1		
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Scientific Area, Skills development		
<b>PREREQUISITE COURSES:</b>	Irrigation		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes (in English)		
<b>COURSE WEBSITE (URL)</b>			

### 2. LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

The purpose of the course is the study of special topics related to irrigation and especially the determination of soil moisture and salinity with modern methodologies and devices.

Upon successful completion of the course, the student will be able to:

- Correctly use dielectric sensors for the measurement of water content, pressure head and salinity and deal with problems of correctly identifying these properties.
- Determine the hydraulic properties of soils in field conditions
- Apply software related to solving water and solute transport problems in the soil.

#### General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and

sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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1.	Search, Analysis and Synthesis of Data and Information, using the Necessary Technologies
2.	Autonomous Work
3.	Teamwork
4.	Promotion of free, creative and inductive thinking

### 3. SYLLABUS

<ul style="list-style-type: none"> <li>• Sensors for the measurement of Soil water content pressure head and salinity (calibration, use in irrigation scheduling and control, problems of correct determination of soil properties).</li> <li>• Determination of hydraulic properties of soils in field conditions. Instantaneous profile method (internal drainage of soil profile).</li> <li>• Irrigation in pots: design, calculations, problems.</li> <li>• Prediction of water infiltration in inhomogeneous soil - Green &amp; Ampt approach.</li> <li>• Using software to solve water, energy and solute flow problems in the unsaturated zone (Hydrus 1D).</li> </ul>
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### 4. TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	In classroom, in laboratory (face-to-face) and in the field.	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Exploitation of Information and Communication Technologies in teaching, in laboratory training and in communication with students. Communication with students via open e-class platform and e-mail.	
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.  The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	25 hours
	Practical exercises focusing on the application of methodologies and analysis of case studies in smaller groups of students.	30 hours
	Case study	10 hours
	Independent study	10 hours
	Course total	<b>75 hours</b>
<b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure  Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other  Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	I. Final written exam (50%) which includes: Theory questions (multiple choice and short answer) and problem solving. II. Final written exam (50%) concerning the subjects of laboratory exercises and laboratory work. <b>Marking Scale: 0-10.</b> <b>Minimum Passing Mark: 5.</b>	

### 5. ATTACHED BIBLIOGRAPHY

*Proposed literature -Scientific journals*

Irrigation Science  
Journal of irrigation and drainage engineering (ASCE)  
Irrigation and Drainage (ICID)