

## 5.6 CE0560 – Environmental Management of Civil Engineering Projects

### (1) GENERAL

<b>SCHOOL</b>	ENGINEERING SCHOOL		
<b>ACADEMIC UNIT</b>	CIVIL ENGINEERING DEPARTMENT		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	CE0560	<b>SEMESTER</b>	5
<b>COURSE TITLE</b>	Environmental Management of Civil Engineering Projects		
<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>
		3	3
<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>	Special Background Course		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>			
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uniwa.gr/modules/auth/opencourses.php?fc=69">https://eclass.uniwa.gr/modules/auth/opencourses.php?fc=69</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b></p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> <li>• <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></li> <li>• <i>Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></li> <li>• <i>Guidelines for writing Learning Outcomes</i></li> </ul>
<p>The aims of this course are:</p> <ul style="list-style-type: none"> <li>• introduce students to the basic concepts of environmental science in particular, with regard to the basic principles of environmental science, in particular in the field of civil engineering projects.</li> <li>• acquaint students with the knowledge of the Greek and European legislation concerning the environment and environmental studies</li> <li>• provide students with the basic principles of environmental protection and the fundamental knowledge on: (a) sustainable development, (b) renewable energy sources, (c) waste management</li> <li>• provide students with the knowledge necessary to organize the preparation of environmental impact studies</li> <li>• acquire the knowledge and skills to adopt and apply the methodologies of assessment, apply environmental impact assessment methodologies and evaluation methods in a variety of practical problems and studies in the topic of environmental impact assessment.</li> </ul>

- acquire the knowledge to apply the basic principles of concepts such as environmental risks, to understand the basic concepts of environmental risks, climate change, sustainable development, main topics of environmental policy and legislative framework for environmental legislation.
- acquire knowledge of the environmental impact of civil engineering projects and become familiar with the concepts, methodology and techniques
- provide fundamental knowledge and skills in environmental impact assessment of projects under construction to acquire basic knowledge and skills in the field of environmental impact assessment for projects under study in civil engineering
- introduce the student to the process of preparing an environmental study

### 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*

*.....*

*Others...*

Specifically, students will be able to perform:

- Working in an interdisciplinary environment
- Working in an international environment
- Search, analysis and synthesis of data and information, using the necessary technologies.
- Respect for the natural environment
- Production of free, creative and inductive thinking
- Decision-making
- Team work
- Autonomous work

## (3) SYLLABUS

1. Environmental impacts, environmental risks, climate change and environmental risks
2. Climate change, sustainable development, main environmental policy areas and the corresponding legislative framework.
3. Water (reservoirs, large and small dams, etc., wastewater treatment plants, marine water, etc.)
4. Water, sewage, wastewater, sewage treatment, marine environment, etc.).
5. Air, air quality.
6. Soil (erosion from natural causes or engineering works, etc.).
7. Solid waste (management of hazardous and non-hazardous waste, aggregates, materials, waste management, etc.)
8. demolition materials, etc.). Methods of calculation.
9. Noise.
10. Global warming (Kyoto Protocol, emissions trading system, CCS, new legislation, emissions trading system, emissions trading system, CCS.
11. Climate-energy package, etc.).
12. Environmental information disclosure, environmental information, environmental protection, climate change, climate change, climate change package, etc.).
13. Aarhus Convention, etc.
14. Renewable energy sources (types, legislation, advantages and disadvantages)
15. Environmental impact assessment.
16. Stages of environmental impact assessment studies. Contents of the environmental study
17. Environmental impact assessment. Categories of impacts. Methodology for assessing environmental impacts.
18. Methodology of environmental impact assessment. Publication and decision-making process. European

- and Greek legislation on EIA. Weaknesses and potentials of natural environment policy.
19. Nature protection (protection of birdlife, Natura 2000 protected areas, Protocol on the protection of the environment and nature conservation)
  20. Cartagena Protocol, World Convention on Biological Diversity, Genetically Modified Organisms (GMOs).
  21. Genetically Modified Organisms - GMOs, etc.).
  22. Case study of an integrated, approved EIA (Environmental Impact Assessment)

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face-to-face														
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Teaching using ICT, Communication and Electronic Submission.														
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail.</i> <i>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.</i>  <i>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>	<table border="1"> <thead> <tr> <th>Activity</th><th>Semester workload</th></tr> </thead> <tbody> <tr> <td>Lectures</td><td>39</td></tr> <tr> <td>Personal Study</td><td>30</td></tr> <tr> <td>Study and analysis of bibliography</td><td>10</td></tr> <tr> <td>Essay writing</td><td>11</td></tr> <tr> <td></td><td></td></tr> <tr> <td>Course total</td><td>90</td></tr> </tbody> </table>	Activity	Semester workload	Lectures	39	Personal Study	30	Study and analysis of bibliography	10	Essay writing	11			Course total	90
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<b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure</i>  <i>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</i>  <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Language of evaluation: Greek  Final written examination: 70 % Written works: 30% or Final written examination: 100%														

#### (5) ATTACHED BIBLIOGRAPHY

##### Greek Bibliography:

1. Vagiona D. (2018). Environmental Impact Assessment Studies. Theory and Application. Disigma Publications. Book code in Eudoxos: 77118264 (in Greek)
2. Vavizos G., Mertzanis A. (2003) Environment -Environmental Impact Studies. 2<sup>nd</sup> Edition, Papasotiriou Publications, Athens 2003. Book code in Eudoxos: 68406906 (in Greek)