

COURSE OUTLINE

1. GENERAL

SCHOOL	Of ENGINEERING		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDIES	7 th LEVEL		
COURSE CODE	TMC371	SEMESTER	9th Semester
COURSE TITLE	SUSTAINABLE URBAN ENVIRONMENT		
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	
	4	5	
<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>	SKILL DEVELOPMENT		
PREREQUISITES:	Energy Design of Buildings, Energy Efficiency in Buildings – Energy Audits, Environmental Friendly Materials – Environmental Assessment of Buildings, Mathematics, Heat Transfer Phenomena, Fluid mechanics, Physics of the Atmosphere		
TEACHING & EXAMINATION LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS:	NO		
COURSE URL:	https://eclass.duth.gr/courses/TMC371/		

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>																
The course aims at: <ul style="list-style-type: none"> • Comprehension of the main principles of sustainability at the built environment • Comprehension of the heat island phenomena and its interaction with the built environment • Comprehension of the main principles of environmental design at the built environment • Comprehension of the basic principles of bioclimatic design of open spaces • Familiarization with the main principles of a holistic design of settlements of low carbon footprint 																
General Skills <i>Name the desirable general skills upon successful completion of the module</i>																
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- Search, analysis and synthesis of data and information, ICT Use
- Decision making
- Autonomous work
- Teamwork
- Production of new research ideas
- Design and management of projects
- Respect for the natural environment
- Promoting free, creative and inductive reasoning

3. COURSE CONTENT

The curriculum covers the following sections:

1. Basic principles of sustainability (environmental, economic, social parameters)
2. Settlements considered as ecosystems (resources, outflow, etc.) – Characteristics of the sustainable city
3. International, European and National legislation, policies and initiatives for sustainability at the built environment (Agenda 21 & Local Agenda 21, Habitat, Mayors Covenant “Sustainable Energy Action Plan”, etc)
4. Urbanization – Problems of urban centers (cities expansion, abandonment of central areas, mobility, social cohesion, etc)
5. Sustainability indexes for the built environment – Ecological footprint
6. Urban heat island – Microclimate - Urban canyon
7. Basic principles of environmental design of settlements: Buildings
8. Basic principles of environmental design of settlements: Urban infrastructure (biological liquid waste treatment, management of solid waste, urban lighting, transportation, etc)
9. Basic principles of environmental design of settlements: Outdoor open spaces
10. Environmental impact assessment (economic, environmental assessment)
11. Examples of sustainability in urban centers
12. Settlements of nearly zero greenhouse emissions / energy consumption – International / European / National examples
13. Examples of bioclimatic redesign of urban outdoor spaces

4. LEARNING & TEACHING METHODS - EVALUATION

<p>TEACHING METHOD <i>Face to face, Distance learning, etc.</i></p>	Face to face, Distance learning (in emergency situations)													
<p>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i></p>	Use of ICT in Teaching, in Exercises /Laboratory Education, in Communication with students													
<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>	<table border="1"> <thead> <tr> <th><i>Activity</i></th> <th><i>Workload/semester</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>20</td> </tr> <tr> <td>Student Assignments (3)</td> <td>80</td> </tr> <tr> <td>Preparation of semester assignment</td> <td>40</td> </tr> <tr> <td>Presentation of assignment</td> <td>10</td> </tr> <tr> <td>Total</td> <td>150</td> </tr> </tbody> </table>	<i>Activity</i>	<i>Workload/semester</i>	Lectures	20	Student Assignments (3)	80	Preparation of semester assignment	40	Presentation of assignment	10	Total	150	
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<p style="text-align: center;">STUDENT EVALUATION</p> <p><i>Description of the evaluation process</i></p> <p><i>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</i></p> <p><i>Please indicate all relevant information about the course assessment and how students are informed</i></p>	<p>Student evaluation is based on:</p> <ul style="list-style-type: none"> • Examination (of 2 to 3 Assignments (50% of marks) and • Examination of semester assignment (50%) <p>The evaluation criteria are posted on the course website (e-class)</p>
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5. SUGGESTED BIBLIOGRAPHY

1. Kosmopoulos P. 'Environmental Design, 2nd Edition, Thessaloniki: University Press A.E. (2007)
2. Kosmopoulos P. Buildings, Energy and Environment, Thessaloniki: University Studio Publ. (2008)

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Argiro Dimoudi, Professor
Contact details:	adimoudi@env.duth.gr
Supervisors: (1)	NO
Evaluation methods: (2)	➤ written examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.
Implementation Instructions: (3)	

(1) Please write YES or NO

(2) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises**: the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and **any other necessary information**.

b) in case of **oral examination with distance learning methods**: the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.