MODULE OUTLINE EPK52

1. GENERAL INFORMATION

SCHOOL	OF APPLIED ARTS AND SUSTAINABLE DESIGN		
PROGRAM COURSE	SUSTAINABLE INTERIOR DESIGN OF BUILDINGS (EPK)		
LEVEL OF STUDY	POSTGRADUATE		
MODULE CODE	EPK52	**SEMESTER OF STUDY**	1st
MODULE TITLE	**Building Envelope**		
INDEPENDENT TEACHING ACTIVITIES *in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits*		**HOURS**	**CREDIS**
Weekly teaching hours 21-23 hours x 13 weeks		**280-300**	**10 ECTS**
COURSE TYPE Compulsory, Optional, Optional mandatory	Compulsory		
PREREQUISITE MODULES:	None		
LANGUAGE OF INSTRUCTION AND EXAMS	Greek		
THE MODULE IS OFFERED TO ERASMUS STUDENTS	No (due to annual duration of the module)		
MODULE WEBSITE (URL)	https://www.eap.gr/en/viosimos-shediasmos/topics/#EPK52 Each module has its own space in the Learning Management System of EAP (https://courses.eap.gr/login/index.php), with controlled access (use of code) for students and teaching staff.		

2. LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:

Upon successful completion of the T.U., students will be able to:

- Understand the interactions of a building with its exterior environment and document measures to improve them
- Understand the basic principles of building placement in space, and the optimal orientation depending on building use
- Understand the dynamic function of a building through the day and over seasons, and its significance depending on use
- Estimate the thermal comfort in interior built spaces with model indicators (PMV)
- Calculate the thermal insulation properties of transparent and opaque building elements
- Understand and calculate thermal bridges in building envelopes and propose effective mitigation measures
- Understand the impact of dynamic envelope characteristics and calculate the corresponding thermal inertia and time lag indicators
- Select the most appropriate combination of materials and building element layering to serve the particular interior environment quality requirements of a building, depending on use and heating type

- Calculate solar gain from simple passive solar systems
- Calculate and optimize the energy efficiency of shading devices
- Propose documented solutions for natural heating, cooling, ventilation and lighting techniques and systems
- Combine the individual elements of an envelope in order to best serve the demand for quality of interior conditions, depending on building use and season.

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies,
Adapting to new situations
Decision-making
Individual/Independent work
Group/Team work
Working in an international environment
Working in an interdisciplinary environment
Project planning and management
Respect for diversity and multiculturalism
Environmental awareness
Social, professional and ethical responsibility and sensitivity to gender issues
Critical thinking
Development of free, creative and inductive thinking
……
(Other…….citizenship, spiritual freedom, social awareness, altruism etc.) …….
Introduction of innovative research

- Search for, analysis and synthesis of data and information by the use of appropriate technologies
- Project planning and management
- Environmental awareness
- Adapting to new situations
- Decision-making
- Individual/Independent work
- Critical thinking
- Group/Team work
- Working in an interdisciplinary environment

3. MODULE CONTENT

The TU aims to provide students with knowledge on building envelopes as the boundaries for energy exchanges between interior and exterior environments, but also as a correlation parameter for building ventilation, heating and cooling, lighting and acoustics systems.

4. TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	Distance education with three Group Counseling Meetings (OSS) during the academic year on weekends. Personal communication and feedback, where necessary (advisory role of SEP members)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in teaching, Laboratory Education, Communication with students*	We use : Remote meetings tools (cisco webex), Presentation software (e.g. power point),

<table>
<tr><td></td><td>Additionally, the students use office automation tools, web browsers and e-reader for digital books.</td></tr>
<tr><td>MODULE DESIGN
Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc

The study hours for each learning activity as well as the hours of selfdirected study are given following the principles of the ECTS.</td><td><table>
<tr><th>Activity</th><th>Annual Workload</th></tr>
<tr><td>3 OSS (x 4 hours)</td><td>12</td></tr>
<tr><td>2 tutorial exercises (2 x 30 hours)</td><td>60</td></tr>
<tr><td>1 semester assignment</td><td>55</td></tr>
<tr><td>Examination</td><td>3</td></tr>
<tr><td>Individual study (21-23 hours x 13 weeks)</td><td>150-170</td></tr>
<tr><td>Total module workload (hours)</td><td>280-300</td></tr>
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<tr><td>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS
Detailed description of the evaluation procedures.

Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other……etc.

Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students</td><td>Completion of written assignments during the academic semester which constitute a 40 percent of each student’s grade, if a pass is obtained in the final or repetitive examination. Final exam grades constitute a 60 percent of the students’ final course grade. For further information go to the <u>EAP Study Guide</u>.</td></tr>
</table>

5. SUGGESTED BIBLIOGRAPHY

ΤΟΤΕΕ 20701-1/2017. Αναλυτικές εθνικές προδιαγραφές παραμέτρων για τον υπολογισμό της ενεργειακής απόδοσης κτιρίων και την έκδοση του πιστοποιητικού ενεργειακής απόδοσης (σύμφωνα με την αναθεώρηση του Κ.ΕΝ.Α.Κ. 2017). Υπουργείο Περιβάλλοντος & Ενέργειας, ΤΕΕ.

Τσαγκρασούλης, Ά. (2015). Φυσικός Φωτισμός. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. ISBN: 978-960-93-7943-4

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ΤΟΤΕΕ 20701-6/2022. Βιοκλιματικός σχεδιασμός στον ελλαδικό χώρο

Ανδρουτσόπουλος Α., Αραβαντινός Δ., Αξαρλή Κ., Θεοδοσίου Θ., Τσικαλουδάκη Αικ. (2011). Κλίμα και εσωτερικό περιβάλλον. Βιοκλιματικός σχεδιασμός κτιρίων (α' έκδοση). ΤΕΕ

Παπαμανώλης, Ν. (2015). Δομική φυσική και αρχές περιβαλλοντικού σχεδιασμού κτιρίων. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις (κεφ. 2, κεφ. 3)

Κατσαπρακάκης Δ., Μονιάκης Μ. (2015). Θέρμανση - Ψύξη - Κλιματισμός. ISBN: 978-960-603-339-1, σελίδες 690 Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις.