

MODULE OUTLINE EPKDE

1. GENERAL INFORMATION

SCHOOL	OF APPLIED ARTS AND SUSTAINABLE DESIGN		
PROGRAM COURSE	SUSTAINABLE INTERIOR DESIGN OF BUILDINGS (EPK)		
LEVEL OF STUDY	POSTGRADUATE		
MODULE CODE	EPKDE	SEMESTER OF STUDY	3rd
MODULE TITLE	Postgraduate Thesis		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>		HOURS	CREDIS
Weekly teaching hours 21-23 hours x 13 weeks		280-300	10 ECTS
COURSE TYPE Compulsory, Optional, Optional mandatory	Compulsory		
PREREQUISITE MODULES:	The presentation of the Dissertation takes place after the successful completion of the program's Modules.		
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/#EPKDE 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 <i>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:</i>
After the end of the Postgraduate Thesis the students will be able to: <ul style="list-style-type: none"> • Critically analyze existing knowledge on topics of the indoor environment • Prepare a literature overview and critically analyze current knowledge in topics related to the indoor environment • Describe, analyze and interpret phenomena related to ventilation, acoustics, heating, air, lighting and cooling quality etc., and propose methodologies to answer research questions on these topics • Formulate new theoretical and methodological approaches, technical instruments or other innovations in the field of the indoor environment • Develop a comprehensive, documented plan for a study on a topic related to the indoor environment.
General Competences <i>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?</i>

<i>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 (Other.....citizenship, spiritual freedom, social awareness, altruism etc.)</i>	<i>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 Introduction of innovative research</i>
<ul style="list-style-type: none"> • 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 Master's Thesis will be a field of application of the knowledge acquired in the TUs and TLUs of PSP and will aim at an overall design project that will be compatible with the principles of sustainable design of the internal environment of buildings. The Master's Thesis is subject to the general regulation of the Master's Thesis of the HOU with CMs of six-month duration.

The General Regulations for Postgraduate Diploma Theses in a Master's degree with semester-long thesis are available at: [General Regulations for the Preparation of Postgraduate Dissertations in a Master's Degree Programme with semester-long Thematic Unit](#)

4. TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY <i>Face-to-face, in-class lecturing, distance teaching and distance learning etc.</i>	<ul style="list-style-type: none"> • Regular distance counseling meetings on the research and writing progress of the thesis, as well as the provision of bibliography. • personal communication and feedback, where necessary (advisory role of SEP members)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY <i>Use of ICT in teaching, Laboratory Education, Communication with students</i>	Remote meetings tools (Cisco webex) Presentation software (e.g., power point) Additionally, the students may use office electronic databases, and the relevant data search and analysis software
MODULE DESIGN <i>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</i>	<ul style="list-style-type: none"> • The students suggest a topic for their thesis, taking into account the list of general thematic categories for thesis subjects determined by the Director after consultation with the T.U. Coordinators. The list is compiled on the basis of the wider scientific subject of the postgraduate programme, as well as the more specific fields of the six research thematic units of the programme.

<p><i>The study hours for each learning activity as well as the hours of selfdirected study are given following the principles of the ECTS.</i></p>	<ul style="list-style-type: none"> • The final title and description of the thesis is given by the students in collaboration with the supervising teaching member. • Students who are to prepare their Dissertation in the winter semester may start on the 1st of October. Students who are to prepare their Dissertation in the spring semester may start on the 1st March. • Students may declare the final title of the dissertation up to one month before the submission deadline, though an electronic educational platform. • The Dissertation preparation period is one academic semester. Students writing their Dissertation in the winter semester must submit it to the Examination Committee by 20 January, while students writing their Dissertation in the spring semester must submit it by 20 June. After incorporation of the necessary corrections according to the observations and comments expressed by the Board, students must submit the final thesis by 31 January or 30 June correspondingly for the winter and spring semesters. If approved, the Dissertation is presented and defended in February, after the end of exams period, or in July, after the repeat exams. • Examination Committees are made up of the 1st and 2nd Supervisors, in addition to the Director (or the Thematic Unit Coordinator, if authorized by the Director). The latter only participates in the oral presentation, and thus in the final grade, whenever and wherever it is deemed necessary. • After successfully presenting/defending their thesis and incorporating any corrections or additions, even appendices that were indicated to them by the Examination Committee, students must upload it to the H.O.U. repository (apothesis.eap.gr).
<p>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS</p> <p><i>Detailed description of the evaluation procedures.</i></p> <p><i>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.</i></p> <p><i>Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students</i></p>	<p>In order to ensure uniform evaluation of Dissertations, the final grade of the Examination Committee is based on the evaluation of both the written thesis and the oral presentation. The following grading guide is provided as an example: https://www.eap.gr/en/semi-annual-programs/</p>

5. SUGGESTED BIBLIOGRAPHY

Sustainable development in the European Union, Monitoring report on progress towards the SDGs in an EU context (2022). Luxembourg: Publications Office of the European Union

Κατσαφάδος Π. & Μαυρομάτης Η. (2015). Εισαγωγή στη Φυσική της Ατμόσφαιρας και την Κλιματική Αλλαγή

Κορωνάκη Ειρ., Αντωνάκος Γ., Δαλαβούρας Δ., Δαλαβούρας Π. (2023). Ψύξη - Κλιματισμός Κτηρίων και Βιομηχανικών Εφαρμογών. Θεσσαλονίκη: εκδ. Τζιόλα. ISBN: 978-960-418-526-9, σελίδες 856

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

TOTEE 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.

Τ.Ο.Τ.Ε.Ε. 20701-4/2017. Οδηγίες και έντυπα ενεργειακών επιθεωρήσεων κτιρίων, συστημάτων θέρμανσης και συστημάτων κλιματισμού (σύμφωνα με την αναθεώρηση του Κ.ΕΝ.Α.Κ. 2017). Υπουργείο Περιβάλλοντος & Ενέργειας, ΤΕΕ.

ASHRAE Advanced Energy Guides

ASHRAE Indoor Air Quality Guide: Best Practices for Design

ASHRAE Standard 62.1-2022, Ventilation and Acceptable Indoor Air Quality

ASHRAE Standard 62.2-2022, Ventilation and Acceptable Indoor Air Quality in Residential Buildings

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

TOTEE 20701-7/2021. “Τεχνητός και φυσικός φωτισμός κτιρίων”

TOTEE 20701-2/2017. Θερμοφυσικές ιδιότητες δομικών υλικών και έλεγχος της θερμομονωτικής επάρκειας των κτιρίων

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

Ανδρουτσόπουλος Α., Αραβαντινός Δ., Αξαρχή 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.

ASHRAE HANDBOOKS: REFRIGERATION 2022 Chapters: R-6 Refrigerant System Chemistry, FOUNDAMENTALS 2021 Chapters: F-7 Fundamentals of Control, F-17 & F-18 Load Calculations, F-28

Combustion and Fuels, F-29 and -30 Refrigerants HVAC SYSTEMS AND EQUIPMENT 2020 Chapter: S-18 Variable Refrigerant Flow (VRF), S-32 Boilers, S-34 Residential in-space Heating Equipment, S-35 Chimney, Vent and Fireplace Systems, S-36 Hydronic Heat-Distributing units and Radiators, S-37 Solar energy equipment and systems, S-38 Compressors, S-39 Condensers, S-40 Cooling towers, S-41 Evaporative Air-Cooling equipment, S-43 Liquid-Chilling Systems, S-50 Thermal storage (Επικοινωνία για οικονομική προσφορά αγοράς Κεφαλαίων από τα βιβλία της ASHRAE: Mr Mark Owen, ASHRAE Director of Publications and Education, USA Tel: 001-678 539 1187 mowen@ashrae.org)

Karellas S., Roumpedakis T., Tzouganatos N., Braimakis K. (2019). *Solar Cooling Technologies* (1st Edition). CRC Press/Taylor & Francis Group. ISBN-pbk: 9780367733179, e-ISBN: 9781315163178, 463 pages

Καρέλλας Σ., Κακαράς Ε., Ρουμπεδάκης Τ. (2022). *Μεταφορά Θερμότητας και Μάζας από τη Φυσική στη Μηχανολογία*. Αθήνα: εκδ. Τσότρας. ISBN: 978-618-5495-98-5, σελίδες 700

Παντελίδης, Γ. (2021). *Νέος οδηγός ενεργειακής επιθεώρησης κτηρίων (3η έκδοση)*. Αθήνα: εκδ. Δεδεμάδη. ISBN: 978-618-5499-09-9, σελ. 675

ΘΕ 2 - Σχεδιασμός Εγκατάστασης Κεντρικής Θέρμανσης Κτηρίων, Ιούνιος 2011 Τεχνικό Επιμελητήριο Ελλάδας

ΘΕ 3 - Ηλεκτρικά Συστήματα και Διατάξεις Αυτομάτου Ελέγχου στις Εγκαταστάσεις Θέρμανσης, Ιούνιος 2011 Τεχνικό Επιμελητήριο Ελλάδας

ΠΟΙΟΤΗΤΑ ΑΕΡΑ σε εσωτερικούς χώρους Συγγραφέας/είς: Λαζαρίδης Μ. ΕΚΔΟΣΕΙΣ Α. ΤΖΙΟΛΑ & ΥΙΟΙ Α.Ε., έτος έκδοσης 2008

Διονυσιος Ευθυμιατος, Ακουστική και κτιριακές εφαρμογές - θεωρία και πράξη Εκδόσεις Παπασωτηρίου, 2007, Παπασωτηρίου : Αθήνα, 2007, 510 σελ., ISBN 978-960-7530-94-3

Νίκος Τσινίκας, Ακουστικός σχεδιασμός χώρων, 3η έκδοση, University Studio Press, Θεσσαλονίκη, 2018, 246 σ., ISBN 978-960-12-2402-2

Remy Nicolas, σημειώσεις μαθημάτος, Περιβαλλοντικός θόρυβος και αστικές μορφές, στο μαθημα 'Εξοικονόμηση ενέργειας σε υφιστάμενα κελύφη', μεταπτυχιακό "Επαναχρήσεις κτιρίων και συνόλων», Τμήμα Αρχιτεκτόνων Μηχανικών της Πολυτεχνικής Σχολής Πανεπιστημίου Θεσσαλίας.

ΥΠΕΚΑ, ΝΕΟΣ ΕΛΛΗΝΙΚΟΣ ΚΑΝΟΝΙΣΜΟΣ ΚΤΙΡΙΑΚΗΣ ΗΧΟΠΡΟΣΤΑΣΙΑΣ, ΑΘΗΝΑ 2010

Γενικές Αρχές Φωτισμού, Χρώμα και Φως, ΣΦΠ51 Τόμος Α Εκδόσεις ΕΑΠ

Εργαλεία Γνώσης για τη Σχεδίαση και Προσομοίωση Έργων Φωτισμού, ΣΦΠ60 Τόμος Α ΕΑΠ

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

Lee, Eleanor S. "Innovative Glazing Materials." *Handbook of Energy Efficiency in Buildings A Life Cycle Approach*. Cambridge: Butterworth-Heinemann, Elsevier Inc., 2018. LBNL-2001193. (<https://eta-publications.lbl.gov/publications/innovative-glazing-materials>)

Robinson, Alastair, and Stephen E Selkowitz. *Tips for Daylighting with Windows*. 2013. LBNL-6902E. (<https://eta-publications.lbl.gov/publications/tips-daylighting-windows>)

Jennifer O'Conner, Eleanor S Lee, Francis M Rubinstein, Stephen E Selkowitz. *Tips for Daylighting with Windows: The Integrated Approach*. 1997. LBNL-39945. (<http://eta-publications.lbl.gov/sites/default/files/tips-for-daylighting-1997.pdf>).

ΠΡΟΤΥΠΑ ΚΑΙ ΚΑΝΟΝΙΣΜΟΙ

EN 15193-1: Energy Performance of Buildings. Energy Requirements for Lighting, Specifications, Module M9, 2017.

IESNA, IES LM-83-12: IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE). Illuminating Engineering Society (IES) Lighting Measurements, ISBN: 978-0-87995-272-3.

CEN Daylight Standard (EN 17037:2018 Daylight in buildings).

CIBSE (2002) Code for Lighting, Oxford: Chartered Institution of Building Services Engineers.