

EEE.9-1.8 Mechanical Installations for Buildings

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	EEE.9-1.8	SEMESTER	9
COURSE TITLE	Mechanical Installations for Buildings		
INDEPENDENT TEACHING ACTIVITIES <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>	WEEKLY TEACHING HOURS	CREDITS	
	3	5	
Total	3	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Scientific Field		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

<p>Learning outcomes</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"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>The aim of the course for the student is to comprehend each of the categories of mechanical installations and acquire skills related to the design (design and dimensioning) and supervision of constructing a mechanical installation. Basic concepts. Standards and regulations. Internal plumbing. Fire extinguishing, fire detection. Heating, cooling installations. Natural gas installations. Technical instructions, regulations.</p> <p>Students will:</p> <ul style="list-style-type: none"> • Understand the basic principles of designing and calculating the basic

mechanical installations of a building.

- Be familiar with and capable of handling relevant regulations and decrees for the preparation of surveys.
- Learn the process of issuing building permits, as well as the engineer's obligations in the construction and supervision phases of a project.
- Possess the ability to prepare technical studies for Mechanical Building installations and to draw up relevant technical offers.
- Effectively implement regulations and standards on requirements for mechanical Building installations
- Be aware of the modern technologies in the realization of Mechanical Building installations and infrastructure.
- Handle purpose-specific, widely used software packages.

Upon successful completion, students will be able to:

- Demonstrate knowledge and understanding of issues related to Mechanical Building installations.
- Competently use the appropriate techniques that should be used in every case of design and planning of Mechanical Building installations, depending on the nature of the problem, the available data, etc.
- Have proven ability to judge, be able, in a systematic manner, to compare and evaluate the impact of alternative decisions and strategies.
- Be able to follow a systematic methodology for the study of relevant studies
- Be able to work with their fellow students to generate and present, both personally and on a team level, a case study, from its initial stages to its final evaluation and proposed solutions.

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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Research, analyze, and synthesize data and information utilizing the necessary technologies. In detail, students will be able to:

1. Search, analyze and synthesize data and information, to generate surveys
2. Autonomous work
3. Teamwork

(3) SYLLABUS

1. General on Mechanical Installations
2. Basic Concepts

3. Standards and Regulations
4. Indoor Plumbing Installations (Water supply and sewerage installations)
5. Fire-extinguishing systems
6. Heating, cooling installations
7. Natural gas installations
8. Regulations, simple basic calculations and plant drawings.
9. Summary of key points of the course

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Physical presence of students - In classroom	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	<ul style="list-style-type: none"> • Use of computers • Use of Audio-visual material and multimedia applications • Update and ancillary training material through the course web site and via e-mail 	
TEACHING METHODS <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>	Activity	Semester workload
	Lectures	34
	Preparation of coursework (individual work)	26
	Study	30
	Course total	90
STUDENT PERFORMANCE EVALUATION <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>	Assessment Language: Greek Written examination: 100% Written examination involves solving a series of exercises related to the entire course subject. Optional coursework preparation of up to 20%, deducted by the percentage of written examination	

(5) ATTACHED BIBLIOGRAPHY

1. «Μηχανολογικές εγκαταστάσεις κτιρίων», Χαρώνης Παν. τόμος Α'.έκδοση σύγχρονη εκδοτική, 2003. ISBN 9608165-53.
2. «Μηχανολογικές εγκαταστάσεις κτιρίων», Χαρώνης Παν. τόμος Β' / έκδοση σύγχρονη εκδοτική, 2003. ISBN 9608165-53.
3. «Τεχνολογία φυσικού αερίου», Παπανίκας Δ. Γ., Εκδ. Vortex, 1997.
4. «Mechanical and electrical equipment for buildings» Stein B.-Reynolds J. έκδοση J. Wiley. 1392 ISBN 0-471-52502-2.
5. «Πυροπροστασία - νομοθεσία, μελέτες», Βιάζης Γ. Α., Εκδ. Παπασωτηρίου, 1998.

6. «Εισαγωγή στην τεχνολογία του φυσικού αερίου», Λέφας Κ. Χ., Εκδ. Φοίβος, 1991.
7. «Θερμοϋδραυλικές Εγκαταστάσεις, Ευρωπαϊκές Τεχνολογικές» Brickle S., Εκδ., 1999