

EEE.6.1 Electrical Installations

COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
DEPARTMENT	ELECTRICAL AND ELECTRONICS ENGINEERING		
LEVEL OF STUDIES	UNDER GRADUATE		
COURSE CODE	EEE.6.1	SEMESTER	6
COURSE TITLE	Electrical Installations		
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
Lectures		3	
Laboratory Exercises		1	
Total		4	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialization Course		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek (official)		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)	www.eee.uniwa.gr		

(2) LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

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 :

- to get familiar with the main types of low voltage building electrical installations and the relative regulations applied
- to be able to design low voltage building electrical installations & to study diagrams concerning low voltage electrical installations and comprehend terms and specifications of them
- to get familiar with the hardware, circuits and devices needed for constructing a LV building electrical installation and the specifications which have to be satisfied
- to understand the calculations which have to be made and the selection criteria which have to be applied in order to have the optimum selection, construction and synthesis of the above components
- to be familiarized with earthing and protection devices of an LV building electrical installation
- to be familiarized with building electrical installations characteristics and their basic parts.
- to understand the operation of a LV building Electrical Installation
- to Know how a LV building Electrical Installation is designed and constructed
- to be able to recognize the components of a low voltage electrical installation
- to be able to carry out the necessary inspections & testing in a LV building Electrical Installation
- to understand how electrical energy is distributed from a supply company to a building

Upon completion of the course, students will be able to:

1. Acquire the knowledge and understanding of issues related to LV building Electrical Installations in general.
2. Perceive, interpret and clearly explain issues related to LV building Electrical Installations.
3. Use all the concepts related to LV building Electrical Installations, provide new calculations, be able to correctly classify the causes of the various problems and generate new knowledge, while gaining implementation experience.
4. Revise old views related to LV building Electrical Installations, so they can create new knowledge. Also, be able to compose and organize working groups and propose solutions.
5. Participate in measuring-experimental procedures for LV building Electrical Installations. Know to handle suitable measuring devices and also be able to evaluate measurements results in order to judge situations correctly, proposing the appropriate solution in each case.
6. Work with their fellow students, to create and present both at individual and group level a case study from its initial stages up to final evaluation and finally be able to propose new ideas and 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, Project planning and management

<i>with the use of the necessary technology</i>	<i>Respect for difference and multiculturalism</i>
<i>Adapting to new situations</i>	<i>Respect for the natural environment</i>
<i>Decision-making</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Working independently</i>	<i>Criticism and self-criticism</i>
<i>Team work</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an international environment</i>	<i>.....</i>
<i>Working in an interdisciplinary environment</i>	<i>Others...</i>
<i>Production of new research ideas</i>	<i>.....</i>

The course aims at fostering the following capabilities:

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Production of free, creative and inductive thinking

(3) Course Content

A. THEORY

The theory part of the course consists of the following modules:

- Introduction – General Aspects .
- International Standards & Greek Regulation of Electrical Installations (ELOT HD 384).
- LV Conductors & Power Cables.
- Electrical materials for low voltage interior electrical installations
- Calculations in LV Building Electrical Installations according to ELOT HD 384
- LV Earthing / Grounding Systems
- LV Protection Devices
- Standard low voltage supplies – Distribution Boards
- Design & Study & Construction of LV Building Electrical Installations

B. LABORATORY

The Laboratory part of the course consists of the following separate modules:

- Introduction - Effects of alternating & direct current on human beings - Protection against both direct and indirect contact
- Lighting Circuits Connections for Building Electrical Installations
- Design & Construction of 1-phase & 3-phase Electrical Panel / LV Distribution Board
- LV Earthing / Grounding Systems (Design & Construction)
- Design & Study & Construction of LV Building Electrical Installations
- Weak Current Electrical Installation & Services
- Inspection & Testing of LV Building Electrical Installations (according to Part 6, ELOT HD 384)

(4) TEACHING and LEARNING METHODS - EVALUATION

<p>DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	<p>Lectures, laboratories</p> <p>Distance education (auxiliary way)</p>	
<p>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<p>Teaching using ICT, Laboratory Education using ICT, Communication and Electronic Submission</p>	
<p>TEACHING METHODS <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></p> <p><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></p>	<p>Activity</p>	<p>Semester workload</p>
	<p>Lectures</p>	<p>39</p>
	<p>Laboratory Exercises</p>	<p>13</p>
	<p>Preparation for Homework on case studies (individual or group work)</p>	<p>32</p>
	<p>Personal study</p>	<p>36</p>
	<p></p>	<p></p>
	<p></p>	<p></p>
	<p></p>	<p></p>
	<p></p>	<p></p>
<p>STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i></p> <p><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></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Written examination: 70%</p> <ul style="list-style-type: none"> problem solving short-answer questions, open-ended questions <p>Laboratory exercise: 30%</p> <ul style="list-style-type: none"> oral examination written work 	
	<p>Course Total</p> <p>120</p>	

(5) ATTACHED BIBLIOGRAPHY

1. Gunter G. Seip, "Electrical Installations", 2004, Editions TZIOLA, (in Greek)
2. Panagiotopoulos N. "Γειώσεις Βιομηχανικών – Επαγγελματικών Κτιρίων και Κατοικιών, 2004, Editions PAPASOTIRIOU (in Greek)
3. Dokopoulos P. "Consumers Electrical Installations", 2005, Editions ZITIS (in Greek)
4. Touloglou S., Stergiou V. "Electrical Installations", 2008, Editions ION (in Greek)
5. Michalis P. "Electrical Installations", 2007, Editions ION (in Greek)
6. Kimoulakis N. "Building Electrical Installations", 2006, Editions PAPASOTIRIOU (in Greek)
7. Sarris G. "Check of Building Electrical Installations", 2011, Editions PAPASOTIRIOU (in Greek)
8. Lecturer Notes (in Greek)