



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Α.ΔΙ.Π.
ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ & ΠΙΣΤΟΠΟΙΗΣΗΣ
ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΣΤΗΝ ΑΝΩΤΑΤΗ
ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC
H.Q.A.A.
HELLENIC QUALITY ASSURANCE
AND ACCREDITATION AGENCY

ΤΕΧΝΟΛΟΓΙΚΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΙΔΡΥΜΑ ΑΝΑΤΟΛΙΚΗΣ ΜΑΚΕΔΟΝΙΑΣ ΚΑΙ ΘΡΑΚΗΣ
ΜΟΝΑΔΑ ΔΙΑΣΦΑΛΙΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΕΙ ΑΜΘ

Quality Assurance in Higher Education Course Data Collection Form

ΤΕΧΝΟΛΟΓΙΚΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΙΔΡΥΜΑ
ΑΝΑΤΟΛΙΚΗΣ ΜΑΚΕΔΟΝΙΑΣ & ΘΡΑΚΗΣ
ΑΓΙΟΣ ΛΟΥΚΑΣ,
65404 ΚΑΒΑΛΑ

EASTERN MACEDONIA AND THRACE
INSTITUTE OF TECHNOLOGY
AGIOS LOUKAS
65404 KAVALA

COURSE OUTLINE

(1) GENERAL

Name and surname of lecturer	JOHN (IOANNIS) DERMENTZOGLOU		
SCHOOL	Technological Applications		
ACADEMIC UNIT	Department of Electrical Engineering		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΣΤΝ2	SEMESTER	6 th
COURSE TITLE	POWER SYSTEMS		
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 and Exercises	4	6.5	
Laboratory			
<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>	<i>Special background, skills development</i>		
PREREQUISITE COURSES:	Electric circuits, Electronics, Electric Machines Theory, Power Electronics, Mathematics		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	http://eclass.teikav.edu.gr/claroline/auth/opencourses.php?fc=11		

(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 course aims to provide the students with the relative theoretical background in order to understand the structure, operation, and methods for the analysis of dynamic/transient behavior of power systems. When completing the course, student will be capable of:</p> <ul style="list-style-type: none"> ➤ Identifying the basic principles of designing power systems or interconnected power systems by taking into account relevant techno economic criteria. ➤ Performing calculations by using load flow analysis techniques for symmetrical or unsymmetrical loads. ➤ Applying and using relevant software environments in order to assess the dynamic/transient behavior of a power system. 																			
<p>General Competences</p> <p><i>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?</i></p> <table border="0"> <tr> <td><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></td> <td><i>Project planning and management</i></td> </tr> <tr> <td><i>Adapting to new situations</i></td> <td><i>Respect for difference and multiculturalism</i></td> </tr> <tr> <td><i>Decision-making</i></td> <td><i>Respect for the natural environment</i></td> </tr> <tr> <td><i>Working independently</i></td> <td><i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i></td> </tr> <tr> <td><i>Team work</i></td> <td><i>Criticism and self-criticism</i></td> </tr> <tr> <td><i>Working in an international environment</i></td> <td><i>Production of free, creative and inductive thinking</i></td> </tr> <tr> <td><i>Working in an interdisciplinary environment</i></td> <td><i>.....</i></td> </tr> <tr> <td><i>Production of new research ideas</i></td> <td><i>Others...</i></td> </tr> <tr> <td></td> <td><i>.....</i></td> </tr> </table>		<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>	<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>	<i>Decision-making</i>	<i>Respect for the natural environment</i>	<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>	<i>Team work</i>	<i>Criticism and self-criticism</i>	<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>	<i>Working in an interdisciplinary environment</i>	<i>.....</i>	<i>Production of new research ideas</i>	<i>Others...</i>		<i>.....</i>
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<ul style="list-style-type: none"> ➤ Searching analyzing and combining data and relevant information by using relevant technology ➤ Assignment of Individual Project ➤ Assignment of Team Project ➤ Design and Projects Management ➤ Introduction of novel research ideas 																			

(3) SYLLABUS

<ul style="list-style-type: none"> ➤ Introduction to Power Systems ➤ Structure of power systems ➤ Power Production ➤ Power Transmission

<ul style="list-style-type: none"> ➤ Electric Loads ➤ Basic elements of A.C. grids ➤ Symmetric systems ➤ Equivalent circuits of transmission lines ➤ Per unit system ➤ Load flow analysis ➤ Symmetric faults ➤ Asymmetric faults ➤ Stability ➤ Substations ➤ Mathematical modeling-Simulation of power systems

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face (in the classroom)	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use slides, website of the course with supporting and auxiliary material,	
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	39
	Theory Practise	13
	Laboratory practice	
	Independent study	110.5
	Course total	162.5
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>	Theory Examination: Final Examination (100%)	

(5) ATTACHED BIBLIOGRAPHY

<ol style="list-style-type: none"> 1. Weedy-Cory-Kolliopoulos, "Transmission and Distribution of Electric Energy", ION Publications, 2001. 2. Vovos N., "Analysis, Control and Stability of Power Systems", Zitis Publications, 2001. 3. J. J. Grainger, W. D. Stevenson, Jr, "Power System Analysis", McGraw-Hill Book Company, 1994. 4. Ntokopoulos P., "Introduction to Power Systems", Vol. 1, 2, Paratiritis Publications, 1986. 5. J. Arrilaga, C. P. Arnold, "Computer Modeling of Electrical Power Systems", John Wiley & Sons Ltd.,

1983.

6. C. Gross, "Power Systems Analysis", John Wiley & Sons, 1979.

7. E. Guile, W. Paterson, "Electrical Power Systems " Vol.1, Pergamon Press, 1977.

8. P. M. Anderson, A. A. Fouad, "Power System Control and Stability", The Iowa State University Press, 1977.

5. R.Mathur_ Mohan and R.K.Varma "Thyristor-based FACTS-controllers for electrical transmission systems", IEEE Press, New York, 1999.