

COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE306	SEMESTER	3
COURSE TITLE	Electric Machines – Electronic technology		
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	4	
Labs – exercises	1	1	
Total	4	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>	<i>Special background</i>		
PREREQUISITE COURSES:	202		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

<p>Learning outcomes <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>On successful completion of this module the learner will be able to:</p> <ol style="list-style-type: none"> 1. Understand adequately the ac motors, DC-Machines operational principles. 2. Predict the machine operation under different conditions 3. Solve electric machines problems using the applicable equivalent circuit 4. Adequately install and operate electric machines
<p>General Competences <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> <p><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>Respect for difference and multiculturalism</i></p>

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

(3) SYLLABUS

- DC machines

Generator operation mode – parallel excitation and external excitation. Series excitation

Motor operation mode – parallel excitation and external excitation. Series excitation.

Equivalent circuits.

AC machines:

Asynchronous motors: Operation principle, Equivalent circuit, Power losses, Torque, asynchronous speed and s (%).

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face, Lectures, Tutorials	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	E-Class, electronic communication,	
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	100
	Laboratory practice	50
	Course total	150
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>	<i>Multiple choice questionnaires, Short-answer questions, Problem solving, Written work, Laboratory work</i>	

(5) SUGGESTED BIBLIOGRAPHY

- Suggested bibliography:

- N. Σκραπαρλής, Β. Μολασιώτης, Δ. Τσιαμήτρος, «Εργαστηριακές Ασκήσεις Ηλεκτρικών Μηχανών Συνεχούς και Εναλλασσομένου Ρεύματος», Εκδόσεις Σύγχρονη Παιδεία, ISBN: 978-960-357-114-8.
- Chapman S., Electrical Machinery Fundamentals, Fourth Edition, McGraw-Hill Inc. 2011