COURSE OUTLINE

1. GENERAL

SCHOOL	NATURAL SCIENCES		
SEPARTMENT	MATHEMATICS		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MAT_PM465	**SEMESTER OF STUDIES**	8ο
COURSE TITLE	COMPLEX ANALYSIS II		

INDEPENDENT TEACHING ACTIVITIES *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*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures, seminars and laboratory work	4	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Elective course
PREREQUISITE COURSES:	Recommended prerequisite knowledge: COMPLEX ANALYSIS
TEACHING AND ASSESSMENT LANGUAGE:	Greek.
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	

2. LEARNING OUTCOMES

Leraning 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

It is expected from students to:

1. Understand properties associated with the mapping of domains under holomorphic functions.
2. Get acquainted with conformal mappings in the complex plane and be able to deal with a variety of examples of conformal mappings.
3. Be able to understand theoretical proofs of classic theorems such as Rouché 's theorem, Scharz's Lemma, Open Mapping Theorem e.t.c. and to realize the information given by these theorems about specific functions.
4. Understand and appreciate deeper aspects of Complex Analysis such as Riemann Mapping Theorem.
5. Make a first contact with some special functions.
6. Develop communication skills of mathematical concepts, oral and written.

General Abilities

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	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*Others…*
Production of new research ideas	

- *Search for, analysis and synthesis of data and information, with the use of the necessary technology.*
- *Decision-making*
- *Working independently*
- Adaptation into new environment
- *Team work*
- *Production of new research ideas*
- *Production of free, creative and inductive thinking*

3. COURSE CONTENT

Analytic functions, Cauchy's integral theorem and consequences, harmonic functions, conformal mappings, existence of analytic logarithm on simple connected domains, reflection principle, Infinite Products, approximation theorems representation of holomorphic functions, special functions.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc*	Face to face.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	Communications via eclass with the students and use of video.
TEACHING ORGANIZATION *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*	*Activity* / *Semester workload* Lectures: 52 Solving suggested exercises: 30 Hours of personal study by the student: 65 Final examination: 3 ***Total number of hours for the Course (25 hours of work-load per ECTS credit)***: ***150 hours (total student work-load)***
STUDENT ASSESSEMNT *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*	**Assessment Language:** Greek **Assessment Language for Erasmus students:** --- **Assessment methods** Written Final Course Examination (100%) including ✓ Theory, ✓ Exercises. Minimum passing grade: 5 Maximum passing grade: 10

5. RECOMMENDED LITERATURE

(*in Greek*)

- Νεγρεπόντης Στυλιανός**.** *Θεωρία Μιγαδικών Συναρτήσεων μιας Μεταβλητής*. Εκδόσεις Συμμετρία, 1993.
- *Μερκουράκης Σοφοκλής Κ. και Χατζηαφράτης Τηλέμαχος Ε. Εισαγωγή στη Μιγαδική Ανάλυση*. *Εκδόσεις Συμμετρία, 2005.*
- *Marsden Jerrold E. and Hoffman Michael J. (μετάφραση: Παπαλουκάς Λουκάς). Βασική Μιγαδική Ανάλυση. Εκδόσεις Συμμετρία, 1994.*
- Bak Joseph and Newman Donald (*μετάφραση: Αποστόλης Γιαννόπουλος*). *Μιγαδική Ανάλυση*. Εκδόσεις Leader Books 2004.