INSTITUTION	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS					
SCHOOL	SCHOOL OF SCIENCE					
DEPARTMENT	INFORMATICS AND TELECOMMUNICATIONS					
COURSE LEVEL	UNDERGRADUATE					
COURSE TITLE	**Calculus I**					
COURSE CODE	K01	Semester	3	ECTS	8	
TEACHING HOURS per week	THEORY	4	SEMINAR.	2	LABORATORY	
COURSE TYPE	**Select one of the following and delete the rest** Compulsory (YM) 	K	E1	E2	E3	E4	E5	E6
A-B						| *Fill the table as in the curriculum:* Track (A-Computer Science, B- Computer Engineering) / Specialization Compulsory (Y) / Core Specialization (B)/ Elective Specialization (E)						
URL	https://eclass.uoa.gr/courses/DI496/					
EXPECTED PRIOR KNOWLEDGE/ PREREQUISITES AND PREPARATION:						
TEACHING AND EXAMINATIONS LANGUAGE:	GREEK					
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO					

COURSE CONTENT
• Principle of induction, completeness of the reals, basic inequalities. • Sequences, convergence of sequences and related properties, criteria of convergence, basic limits. • Continuity of functions, basic properties of continuous functions, limit of functions, relation between limit and continuity. • Differentiable functions and related calculus, properties of differentiable functions. • Subsequences, the Bolzano–Weierstrass theorem. • Convergence of series of reals numbers, series with non-negative terms, absolute convergence, criteria of convergence. • The Riemann integral (definition and properties), integrability of continuous and monotone functions. • Indefinite integral, the fundamental theorem of calculus.

COURSE SYLLABUS

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Εθνικόν και Καποδιστριακόν
Πανεπιστήμιον Αθηνών
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- Techniques of integration, integration of rational functions by partial fractions.
- Taylor expansion and examples.

STUDENT LEARNING OBJECTIVES

Teaching-Learning Goals-Expected Learning Outcomes

The main goal of the course is to offer to the student the necessary knowledge for the study of real-valued functions of one variable. This knowledge is the cornerstone for most of the courses that follow in later semesters.

Upon successful completion of the course the student will be able to:
- calculate the limit of sequences;
- decide whether a given series is convergent;
- study the continuity of real functions;
- find the derivative of real functions, and using it;
- compute the integral of real functions;
- find the Taylor expansion of functions.

TEACHING AND LEARNING METHODS - ASSESSMENT	
TEACHING METHOD	In Class (Face to Face)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Learning process supported by the e-class platform Email communication Live transmission of lectures Ability to track recorded lectures

TEACHING ORGANIZATION	
Describe in detail the way and methods of teaching: *Enhanced Lectures,* *Online Lectures,* *Seminars,* *Tutorial,* *Laboratory,* *Laboratory Exercise,* *Study & analysis of literature,* *Practice (Positioning),* *Interactive teaching,* *Developing a project,* *Individual / group work* *Telework (reference to tools) etc.* *Details of the student's study hours for each learning activity and hours of non-guided study are shown to ensure that the total workload at the semester corresponds to the ECTS*	

Activity	Student Workload (hours)
Lectures	52
Tutorial	26
Individual Study/ Study and Analysis of bibliography/ Preparation	140
Total Course (25 hours of workload per unit of credit)	*218*

COURSE SYLLABUS

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ASSESSMENT OF STUDENTS *Description of the assessment process* *Assessment Methods, Formative or Concluding, Multiple Choice Test, Quick Response Questions, Test Development Questions, Problem Solving, Written Work, Report / Report, Oral Examination, Public Presentation, Laboratory Work, Other / Other* *Fully defined evaluation criteria are mentioned and if and where they are accessible to students.*	Describe explicitly methods, evaluation tools and provided feedback. The table below is supplemented accordingly.

Assessment methods	*Number*	*Percentage*
Written examination	1	50%

LITERATURE AND STUDY MATERIALS / READING LIST

- Απειροστικός Λογισμός 1, Σ. Νεγρεπόντης, Σ. Γιωτόπουλος και Ε. Γιαννακούλιας, ΕΚΔΟΣΕΙΣ ΣΥΜΜΕΤΡΙΑ.
- Διαφορικός και Ολοκληρωτικός Λογισμός, M. Spivak, ΠΑΝΕΠΙΣΤΗΜΙΑΚΕΣ ΕΚΔΟΣΕΙΣ ΚΡΗΤΗΣ.
- Απειροστικός Λογισμός I & II, Α. Γιαννόπουλος, σημειώσεις.