COURSE SYLLABUS

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Εθνικόν και Καποδιστριακόν
Πανεπιστήμιον Αθηνών
ΙΔΡΥΘΕΝ ΤΟ 1837

dit DEPARTMENT OF
INFORMATICS &
TELECOMMUNICATIONS

INSTITUTION	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS						
SCHOOL	SCHOOL OF SCIENCE						
DEPARTMENT	INFORMATICS AND TELECOMMUNICATIONS						
COURSE LEVEL	UNDERGRADUATE						
COURSE TITLE	**Operating Systems**						
COURSE CODE	**K22**		**Semester**	5	**ECTS**		8
TEACHING HOURS per week	THEORY	4	SEMINAR.		LABORATORY		
COURSE TYPE	Select one of the following and delete the rest Compulsory (YM) *Fill the table as in the curriculum:* Track (A-Computer Science, B- Computer Engineering) / Specialization Compulsory (Y) / Core Specialization (B)/ Elective Specialization (E)						
URL	*http://ww.di.uoa.gr/~ad/k22*						
EXPECTED PRIOR KNOWLEDGE/ PREREQUISITES AND PREPARATION:	K08 Data Structure and Programming Techniques, Recommended K14						
TEACHING AND EXAMINATIONS LANGUAGE:	GREEK						
THE COURSE IS OFFERED TO ERASMUS STUDENTS							

Within the COURSE TYPE cell:

K	E1	E2	E3	E4	E5	E6

COURSE CONTENT
The objective of the course is to introduce the fundamental concepts and principles that modern Operating Systems use to both manage resources and help users develop effective applications. Classic concepts including batch processing, time sharing, kernel design, interfaces, system programs, system calls, services, multi-programming, process synchronization, shared memory, resource allocation schemes and pertinent policies, multi-threading, file system structures as well as basic security mechanisms are introduced. The study of the subject is balanced with programming and homework assignments throughout the semester. The course requires both independent and consistent effort from the student.

STUDENT LEARNING OBJECTIVES

Teaching-Learning Goals-Expected Learning Outcomes

 To introduce basic concepts and modules of contemporary Operating Systems and present the interaction and the policies used by these elements

Upon successful completion of the course the student will be able to:
- Describe and manage the interface between user programs and the OS and its services.
- Define, design and implement basic services with the help of Unix system calls.
- Designate, design and develop APIs for libraries created.
- Explain and program inter-process communication mechanisms in Unix.
- Design, implement, and evaluate programs pertinent to the use of memory and I/O services.
- Define, design and develop system programs in the Unix environment while using C/C++ and pertinent libraries.

TEACHING AND LEARNING METHODS – ASSESSMENT	
TEACHING METHOD	In Class (Face to Face)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Learning process supported by class web page and Piazza.com class forum. Posted class materials (www.di.uoa.gr/~ad/k22) include: course description and syllabus, slides, announcements, programming assignments, discussions on programming assignments, and pointers to external links.
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
Programming Projects (4)	56
Homework Assignments(3-4)	16
Independent Study	26
Total Course **(25 hours of workload per unit of credit)**	**150**

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ASSESSMENT OF STUDENTS	Students are evaluated via final written exam and programming assignments. Programming assignments are graded via oral exam. Re-grades of exam and assignments are possible.		
Description of the assessment process			
	Assessment methods	*Number*	*Percentage*
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	Midterm examination	1	17%
	Final Examination	1	30%
Fully defined evaluation criteria are mentioned and if and where they are accessible to students.	Progr. Assignment	4	48%
	Homework Assign.	3-4	9%

LITERATURE AND STUDY MATERIALS / READING LIST
Textbook: A. Silberschatz, P.B. Galvin, G. Gagne,Operating System Concepts,9th Edition, John Wiley & Sons, Inc., 2013. Secondary Textbook: R. Arpaci-Dusseau and A. Arpaci-Dusseau,Operating Systems: Three Easy Pieces, Arpaci-Dusseau Books,LLC, 2016.