INSTITUTION	NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS						
SCHOOL	SCHOOL OF SCIENCE						
DEPARTMENT	INFORMATICS AND TELECOMMUNICATIONS						
COURSE LEVEL	UNDERGRADUATE						
COURSE TITLE	**Implementation of Database Management Systems**						
COURSE CODE	**K18**		**Semester**	**5**	**ECTS**	**6**	
TEACHING HOURS per week	**THEORY**	**3**	**SEMINAR.**	**1**	**LABORATORY**	**0**	
COURSE TYPE	**Select one of the following and delete the rest** Track Compulsory (EYM) **K** | **E1** | **E2** | **E3** | **E4** | **E5** | **E6** A | | Y | Y | | | *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/D22/						
EXPECTED PRIOR KNOWLEDGE/ PREREQUISITES AND PREPARATION:	Design and Applications of Databases (K29).						
TEACHING AND EXAMINATIONS LANGUAGE:	GREEK						
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No						

COURSE CONTENT
Introduction to Database Management Systems, differences from File Management Systems, physical characteristics of external storage units (mostly disks), data organization on disks, the concept of a file, buffer management, primary file organizations, secondary file organizations, static and dynamic data structures, ISAM, B+ trees, static and dynamic hashing, external file sorting, relational algebra, processing of relational-algebra operators and corresponding algorithms, processing cost according to the type of index used, optimization of relational algebra queries, the concept of transaction, concurrency control, crash recovery

STUDENT LEARNING OBJECTIVES
Teaching-Learning Goals-Expected Learning Outcomes Upon successful completion of the course, the student will have achieved the following learning goals: • Have a good understanding of the internal software structure of a Database Management System. • Have a good understanding of the algorithms behind the memory hierarchy and its behavior, indexing, query processing and optimization, and concurrency control. • Have first-level hands-on experience in implementing static and dynamic index structures.

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 (Discussions, Announcements, Task assignments) 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	39
Tutorial	0
Laboratory	6
Teamwork in a case study	65
Small individual exercises	10
Independent Study	30
Total Course (25 hours of workload per unit of credit)	***150***

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%
Progress	2	0%
Exercises	3	50%
Laboratory	5	0%
Final work	1	0%

LITERATURE AND STUDY MATERIALS / READING LIST
• «Θεμελιώδεις Αρχές Συστημάτων Βάσεων Δεδομένων», R. Elmasri και S. Navathe (μετάφραση Μ. Χατζόπουλος), πέμπτη έκδοση, εκδόσεις Δίαυλος. • «Συστήματα Διαχείρισης Βάσεων Δεδομένων», R. Ramakrishnan και J. Gehrke, δεύτερη έκδοση, εκδόσεις Πολιτεία.