COURSE OUTLINE

(1) GENERAL

SCHOOL	SOCIAL SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF CULTURAL TECHNOLOGY AND COMMUNICATION		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**PLR 109**	**SEMESTER**	**5**
COURSE TITLE	DATA BASES		

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*	**WEEKLY TEACHING HOURS**	**CREDITS**
lectures	2	3
Laboratory exercises	2	2
	4	5
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*	Compalsory / General background
PREREQUISITE COURSES:	None
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	https://eclass.aegean.gr/courses/131225/

(2) LEARNING OUTCOMES

Learning 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*

Upon completion of this course, participants will have gained knowledge of the fundamental database system concepts. In particular they will:

- Develop an understanding of the role and advantages of DBMS
- Understand the data management process
- Identify the basic components and the architecture of a database system
- Understand the DB development process
- Understand the use of high-level conceptual models for the representation of the data structure
- Be able to define an ER model and describe the entities and relationships involved
- Understand how to organize data as relations
- Recall the constraints and operations of the relational data model

- Be able to convert an ER diagram into a relational schema
- Be able to implement an appropriately designed database structure using an RDBMS
- Identify Structure Query Language statements used in creation and manipulation of database.
- Be able to perform functions such as data entry, queries and reports including linking from two or more tables

General Competences

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

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Team work

(3) SYLLABUS

The course aims to introduce students to the fundamental concepts of data base systems. It presents the conceptual modelling techniques with emphasis on the Entity-Relationship model. Extensive reference to the relational data model and the structured query language (SQL) is made. In addition, the physical file structures and access methods used in data base systems are described. Finally, the capabilities of the data base management systems are presented in the laboratory through the use of an RDBMS.

Διαλέξεις	
1.	Introduction – Basic Concepts
2.	Data Base Systems Architecture – Data Base Systems Life Cycle
3.	Conceptual Design – The Entity Relationship (ER) Model
4.	The Extended ER Model (EER)
5.	Logical Design – The Relational Model
6.	Mapping EER Model to Relational Schema
7.	Relational Operations
8.	Relational Algebra I
9.	Relational Algebra I
10.	The Structured Query Language (SQL) I
11.	The Structured Query Language (SQL) II
12.	SQL wrap - up
13.	Review

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of open source software in laboratory education
TEACHING METHODS *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*	
STUDENT PERFORMANCE EVALUATION *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.*	Students are evaluated using a combination of assessment methods, including: Final Exam involving problem solving and short-answer questions 65% Lab Assignments 10% Team Project 25% The evaluation criteria are given during the first lecture and are explicitly stated in the course eclass.

Activity	***Semester workload***
Lectures	13 *2 hours =26 hours
Study of lectures' material	13*5 hours = 65 hours
Laboratory practice	13*2 hours = 26 hours
Project	25 hours
Course total	142 hours

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Relational Databases, E. Kexris, Kritiki 2015, ISBN 978-960-218-928-3
- Databases and SQL: A practical approach, A. Stavrakoudis, Kleidarithmos 2010, ISBN 978-960-461-664-0

- Modern Database Management, Hoffer J., Ramesh, Topi, Tziolas 2016, ISBN 978-960-418-502-3

- Related academic journals:

- IEEE Transactions on Knowledge and Data Engineering, IEEE Society
- ACM Transactions on Database Systems, ACM
- Data and Knowledge Engineering, Elsevier
- VLDB Journal, Springer
- Data Mining and Knowledge Discovery, Springer
- ACM Transactions on Knowledge Discovery from Data, ACM
- Journal of Data Semantics, Springer