COURSE OUTLINE

(1) General

School:	Social Sciences		
Academic Unit:	Geography		
Level of studies	Undergraduate		
Course Code:	GEO 241	**Semester:**	D
Course Title:	Geographic Databases		
Independent Teaching Activities	**Weekly Teaching Hours**	**Credits**	
Lecture	2		
Laboratory practice	2		
		Course total	5
Course Type:	Required Elective		
Prerequisite Courses:			
Language of Instruction and Examinations	Greek		
Is the course offered to Erasmus students:	No		
Course Website (Url):	https://geography.aegean.gr/pps/index_en.php?content=0&lesson=241		

(2) Learning Outcomes

Learning Outcomes

Upon completion of the course the student is expected to:

- Explain the advantages of databases in data management
- List the phases of database development
- Discover, clarify and synthesize the requirements of a data management project
- Draw an Entity-Relationship diagram
- Compose the relational schema of a database
- Implement a database and a geographic database
- Compose queries into the SQL language and use the SQL spatial functions
- Join a team to complete a data management project

General Competences

1. Search for, analysis and synthesis of data and information, with the use of the necessary technology
2. Working independently
3. Team work
4. Project planning and management
5. Production of free, creative and inductive thinking

(3) Syllabus

Teaching modules:

- Data and Information - Geographical Data
- Introduction to Databases and Geographic Data Bases
- Conceptual design - Entity-Relationship model
- Logical design - Relational data model
- Files - Indexes - Spatial Indexes
- Data Manipulation Operations - Relational Algebra
- SQL
- Spatial SQL functions

Laboratory exercises:

- Entity-Relationship diagrams
- Relational data model
- Creating a database
- Creating a geographic database
- Data / geographic data import operations
- Using SQL I
- Use SQL II
- Using Spatial Functions in SQL I
- Using Spatial Functions in SQL II

(4) Teaching and Learning Methods - Evaluation

Delivery:	Face-to-face.	
Use of Information and Communication Technology:	Diagrams drawning applications - Database Management Systems (Base, PostgreSQL / PostGIS, ESRI Geodatabases) - Geographic Information Systems (Quantum GIS, ESRI ArcGIS)	
Teaching Methods:	**Activity**	**Semester workload**
Lecture	26	
Laboratory practice	26	
Project	45	
Non-supervised study	39	
Performance evaluation/Exams	3	
	Course total<	139
Student Performance Evaluation	Assignments in groups (3) - Laboratory examination - Written examination	

(5) Attached Bibliography

- Geographical Databases and Geographical Information Systems, E. Stefanakis, Papasotiriou Publications (in Greek)
- Fundamentals of Database Systems, R. Elmasri - S. B. Navathe, Diavlos Publications (in Greek)
- Modern Database Management, J. A. Hoffer - V. Ramesh - H. Topi, Tziolas Publications (in Greek)
- Lecture Notes by the instructor (in Greek)