Program	Level		Schort cycle		
	Name of the program		Infomation Technologies		

COURSE

Course title	**Databasaes**				
Course code	Semester	Course status		ECTS	Contact hours (L+AE+LE)
IT 220	III	Mandatory course		6	3+0+2
Lecturer					
Course Goals	The course aims to familiarize students with entities, relations, models, SQL database language, logical design and database integrity. The above concepts are necessary for students to understand the working principles of databases and information systems. In addition, students will be familiar with the methodology of solving problems in relational databases.				
Learning Outcomes	Through the mentioned course, students will master the use of the SQL language through independent work on laboratory exercises as a means for designing and implementing a small information system, as well as training students to develop such and similar techniques.				

COURSE CONTENT

- Relational data model; Formalisms of the relational model; Relational algebra; Relational calculus;
- Relational query languages. SQL Query language; Views; SQL standards
- Logical dependencies; Functional dependence; Ambiguous dependencies;
- Normal forms (NF): First normal form; Second normal form; Third normal form; Other normal forms;
- Boyce-Codd normal form;
- Fourth normal form; Fifth normal form
- Structures and algorithms. Sequential representation.
- Direct organization.
- Index representation; Network representation.
- Transaction management.
- Data integrity; Transactions and integrity; Locking protocols.
- Logical padlocks; Physical padlocks; Distributed databases.

LITERATURE

[1] Thomas Connolly, Carolyn Begg: Database Systems: A Practical Approach to Design, Implementation, and Management 4th Edition, Addison Wesley, 2004.
[2] S. Sumathi, S. Esakkirajan: Fundamentals of Relational Database Management Systems, Springer, 2007.
[3] Lecture notes.
[4] J.D. Ullman, Principles of Database Systems. Computer Science Press, 1980.
[5] Raghu Ramakrishnan, Johannes Gehrke: Database Management Systems, 3rd Edition 3rd Edition, McGraw-Hill, 2002.

STUDENT WORKLOAD (hours in a semester)

Lectures	45	Exercises	30	Individual work	75	T o t a l	150

GRADING			REMARKS	
Criterion	Maximum points	Minimum points		
Midterm exams	5	3		
Homework	5	3		
Projects	40	21		
Seminar	5	3		
Final exam	45	25		
T o t a l	100	55		