



SYLLABUS

Basic information of the course	
University:	University “Ukshin Hoti” - Prizren
Academic unit:	Faculty of Computer Science
Study program:	Information Technologies and Telecommunication
Course:	Database Systems
Study level:	Bachelor
Course status:	Mandatory
Study year:	3
Number of hours per week:	2+2
Credit value - ECTS:	6
Time / location:	It will be published in the university web site!
Lecturers:	Assoc. Prof. Dr. Samedin Krrabaj Ass. Endrit Fetahu, Ph. D. c.
Contact details:	samedin.krrabaj@uni-prizren.com endrit.fetahi@uni-prizren.com
Course description:	This course covers the fundamental concepts of database systems. Topics include data models (ER, relational, and others); data integrity, query languages (relational algebra, SQL); relational algebra, normalization.
Course objectives:	This course aims to give to the students stable knowledge in databases, focusing on relational database management systems. Are covered aspects of data modeling, entity-relationship model (ER), relational model, and relational algebra. Are described three levels of the architecture of databases, languages and database users - SQL (Structured Query Language), entities and unions; conceptual model, logical model and relational model in relational systems; normalization of a database; uniqueness of primary keys and referential integrity; defining of the data in SQL Server; defining the typology of data, determine the values "default" inter-relational rules "Query" in SQL and QBE (Query By Example). Treatment of data. Sights and control of

	the access to SQL, SQL insertion instructions in languages "conventional" programming. Methods and models of the databases design. Diagram entity-union, its main constructs. Designing logical ER restructuring scheme, redundancy analysis, elimination of the hierarchies. Web Applications.
Learning outcomes:	<p>The course has as main objective the granting of the knowledge on methods of conception of the databases, in terms of defining, accessing, handling and control of the data independently from management technology bases. Then, based on the above theories are given general and applied knowledges on one or two database management technology with targeted application of the theoretical knowledge acquired. The course aims to:</p> <ul style="list-style-type: none"> - To enable students in database design: a well-designed database simplifies the construction, maintenance, and manipulation of an application - To provide students with advanced knowledge in SQL programming: in this way it would be simple to modify a well- designed database.

Contribution on student load (must correspond with learning outcomes)			
Activity	Hours	Days/week	Total/hours
Lectures	2	15	30
Exercise theoretical/laboratory	2	15	30
Practice work	1	2	2
Contact with lecturer/consultations	1	15	15
Field exercises	-	-	-
Midterms	2	2	4
Laboratory exercises	2	1	2
Individual time spent studying (at the library or home)	3	15	45
Final preparation for the exam	3	5	15
Time spent in evaluation (tests, quiz, final exam)	2	3	6
Projects, presentations, etc.	1	1	1
Total			150
Notice: 1 ECTS credits = 25 hours commitment, e.g. if the course has 6 ECTS credits student must have 150 hours during the semester.			

Teaching methods:	The course is a combination of lectures, discussions, numerical and laboratory exercises, while the assignments are presented by the laboratory course lecturers!	
Assessment methods:	<ul style="list-style-type: none"> - Attendance and activities: 10%. - Exercises: 10%. - Group project: 20%. - The first test: 25%. - The second test: 35%. 	
Assessment and grading:	Vlerësimi në %	Nota përfundimtare
	91% - 100%	10
	81% - 90%	9
	71% - 80%	8
	61% - 70%	7
	51% - 60%	6
	0% - 50%	5
Literature		
Basic literature:	<ol style="list-style-type: none"> 1. Ramakrishnan, R., & Gehrke, J. (2003). DATABASE MANAGEMENT SYSTEMS (3rd Edition). United States of America: McGraw-Hill. 2. Connolly, T. M., & Begg, C. E. (2005). Database Systems: A Practical Approach to Design, Implementation, and Management (4th edition). United States of America: Pearson Education. 	
Additional literature:	<ol style="list-style-type: none"> 1. Jeffrey A. Hoffer, Mary B. Prescott, Fred R. McFadden: Modern Database Management. 8 Edition. 2007. Publisher: Addison Wesley. ISBN: 0-13-221211-0. 2. Database modeling and design, Toby. J. Teorey, 1999 3. Ben Forta: SAMS Teach Yourself SQL Server in 10 minutes. Second Edition. 2001 4. SQL Server Management Studio 2014, tutorial 	
Study plan		
Week	Lectures	
<i>First week:</i>	<ul style="list-style-type: none"> • Introduction to Database Systems 	
<i>Second week:</i>	<ul style="list-style-type: none"> • Conceptual design of database 	
<i>Third week:</i>	<ul style="list-style-type: none"> • Entity – Relationship (E-R) Model 	

<i>Fourth week:</i>	<ul style="list-style-type: none"> • Relational Model • Relations and the integrity constraints (primary keys and foreign keys)
<i>Fifth week:</i>	<ul style="list-style-type: none"> • Logical design of database (ER to relational schema)
<i>Sixth week:</i>	<ul style="list-style-type: none"> • Relational algebra
<i>Seventh week:</i>	<ul style="list-style-type: none"> • The first test
<i>Eighth week:</i>	<ul style="list-style-type: none"> • SQL: DDL and DML
<i>Ninth week:</i>	<ul style="list-style-type: none"> • SQL: Queries
<i>Tenth week:</i>	<ul style="list-style-type: none"> • SQL: Constraints and Triggers
<i>Eleventh week:</i>	<ul style="list-style-type: none"> • Database access from a programming language: JDBC
<i>Twelfth week:</i>	<ul style="list-style-type: none"> • Stored Procedures
<i>Thirteenth week:</i>	<ul style="list-style-type: none"> • Functional Dependencies
<i>Fourteenth week:</i>	<ul style="list-style-type: none"> • Normal Forms
<i>Fifteenth week:</i>	<ul style="list-style-type: none"> • The second test

Exercises

Study plan	
Java	Exercises
<i>First week:</i>	<ul style="list-style-type: none"> • Introduction to Database Systems
<i>Second week:</i>	<ul style="list-style-type: none"> • Conceptual design of database
<i>Third week:</i>	<ul style="list-style-type: none"> • Entity – Relationship (E-R) Model
<i>Fourth week:</i>	<ul style="list-style-type: none"> • Relational Model • Relations and the integrity constraints (primary keys and foreign keys)
<i>Fifth week:</i>	<ul style="list-style-type: none"> • Logical design of database (ER to relational schema)
<i>Sixth week:</i>	<ul style="list-style-type: none"> • Relational algebra
<i>Seventh week:</i>	<ul style="list-style-type: none"> • Exercises about the first test
<i>Eighth week:</i>	<ul style="list-style-type: none"> • SQL: DDL and DML
<i>Ninth week:</i>	<ul style="list-style-type: none"> • SQL: Queries
<i>Tenth week:</i>	<ul style="list-style-type: none"> • SQL: Constraints and Triggers
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<i>Thirteenth week:</i>	<ul style="list-style-type: none"> • Functional Dependencies
<i>Fourteenth week:</i>	<ul style="list-style-type: none"> • Normal Forms
<i>Fifteenth week:</i>	<ul style="list-style-type: none"> • Exercises about the second test

Academic policies and rules of conduct

- Generally lecture presentations will be made through MS PowerPoint, tables, material usage, computer programs and numeric exercises.
- Additional resources (scientific papers, publications, national bulletins, as well as recent discoveries and research) will be provided by professors.
- In the absence of the opportunity for practical work to be organized weekly, in cooperation with the management of the university, this activity will be organized on certain days in: organizations, companies, etc.
- During each session will be organized the conversation and co-participation with the students!
- Students are required to be regular in lectures and exercises!
- It will be evaluated when the students collaborate and participate in the lectures and course exercises!
- Timely arrival in lectures and exercises is mandatory!