

Óbuda University John Von Neumann Faculty of Informatics		Institute for Cyber-Physical Systems		
Name and code of subject: <i>Databases, NIXAB0EBNE</i>		Credits:		
<i>Computer Science and Engineering BSc programme</i>		<i>Full time year 2021/22 sem I.</i>		
Lecturer: Dr. Nagy Enikő				
Prerequisites: (with code)		Szöveg beírásához kattintson ide.		
Weekly number of lessons:	Lecture: 2	Class: 0	Lab: 2	Consultation: 0
Way of assessment:	Practical grade			
The curriculum				
<p>Aims/Objectives of Lecture: In the framework of the subject, students get acquainted with the theoretical foundations and implementation of database management systems, the database design process, and modern data management methods. Lab: The aim of the training is to apply the theory of relational database management systems in practice, and to introduce SQL through the use of a specific client-server type database management system (Oracle 12g).</p>				
<p>Topics: Lecture: Theory and use of the relational model. Anomalies. Normalization. Database design. Data modeling. ER diagram. Relational algebra. Role and use of indexes. Tasks of the database administrator. DDL. DML. DCL. Oracle analytical functions. Database architectures. Database management system structure. Data warehouses. Business intelligence. Laboratory: Basic concepts of relational database design (relations, relational operations), Normalization (0NF, 1NF, 2NF, 3NF), database anomalies. Queries using SQL SELECT statement, join tables, subqueries. DML instructions, database transactions. DDL statements, table creation, data types, constraints, view tables, top-N analysis. Authorization management, DCL instructions. Analytical functions in Oracle12gR2.</p>				

Thematic		
Week	Lecture	Topic Lab
1.	Introduction, Retrieving Data Using the SQL SELECT Statement	Simple SQL queries. (SELECT, WHERE, ORDER BY statement parts)
2.	Restricting and Sorting Data, Using Single-Row Functions to Customize Output	Single-Row and group functions. (GROUP BY, HAVING instruction parts)
3.	Using Conversion Functions and Conditional Expressions, Reporting Aggregated Data Using the Group Functions,	SQL joins
4.	Displaying Data from Multiple Tables Using Joins, Using Subqueries to Solve Queries	Multiple tables queries, views
5	Using the Set Operators, Managing Tables Using DML Statements,	DML
6.	Introduction to Data Definition Language, Introduction - Oracle Database 12C: SQL Workshop II.	DDL
7.	Introduction to Data Dictionary Views,	DCL

8.	Creating Sequences, Synonyms, and Indexes, Creating Views	Detailed grouping (GROUP BY ROLLUP, CUBE, GROUPING SETS statement parts)
9.	Managing Schema Objects, Retrieving Data by Using Subqueries	Subqueries, Analytical functions I
10.	Manipulating Data by Using Subqueries, Controlling User Access	Analytical functions, (Rank, statistical and extreme functions), Histogram functions (WIDTH_BUCKET, NTILE)
11.	-	-
12.	Manipulating Data, Managing Data in Different Time Zones	Practice
13.	<i>Lecture test</i>	<i>Lab test</i>
14.	<i>Replacement test, Summary, Evaluation</i>	<i>Replacement test</i>
Midterm requirements		
<p>Attendance at the lab session is compulsory. The „TVSZ” applies to absences. Students write two tests (week 13) in the lab and in a lecture. With the laboratory test max. 60 points can be obtained, with the lecture test 40. From the sum of these, the score obtained will be compiled and the grade will be formed. Writing tests is compulsory! If a student has not written a test or has not passed at least a 51% level, he / she may write a replacement test from the material of that test. The replacement test is successful if the student completes at least a 51% level. Both tests can be replaced on a separate occasion in the 14th week of the study period or during the exam period. The condition for signing is to pass both tests at least 51% and to take the Oracle exam. At the lecture, students write a test in the 13th week, with which max. they can get 40 points. In case of proven absence, the lecture test can be replaced at week 14.</p>		
Tests		
Week	Topic	
13	Labor Test , Lecture Test	
14	Replacement Labor Test, Lecture Test	
Method used to determine the end-of-semester grade		
The condition for signing is to pass both tests at least 51% and participation in the labor sessions.		
Method of replacement		
Both tests can be replaced in the 14th week of the study period or during the exam period.		
Method of exam		
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Method used to determine the exam grade	
<p>The exam score consists of the sum of the following 2 items:</p> <ol style="list-style-type: none"> 1. The result of the test written on the lecture (max. 40 points) 2. Score on the practical test (max. 60 points) <p>51 points must be scored for a sufficient ticket, 63 points for a medium ticket, 74 points for a good ticket and 85 points for a distinguished ticket.</p> <p>Lecture and lab practice are one subject, so they cannot be taken separately. Anyone who already has a signature on the subject can take the exam course. In the examination course, the grade is derived exclusively from the result of the test written on the examination (max. 100 points). 51 points must be scored for a sufficient ticket, 63 points for a medium ticket, 74 points for a good ticket and 85 points for a distinguished ticket.</p>	
Literature	
Compulsory:	
Ullman J.D., Widom J. :Database systems The complete book Second edition, Pearson International Edition	
Suggested:	
Abraham Silberschatz, Hank Korth, S. Sudarshan: Database System Concepts, McGraw-Hill, 2010.	
Ullman J.D., Widom J. : Adatbázisrendszerek; alapvetés, 2. kiadás, PANEM Kiadó, Budapest, 2008	
Quittner Pál, Baksa-Haskó Gabriella: ADATBÁZISOK, ADATBÁZIS-KEZELŐRENDSZEREK. http://miau.gau.hu/avir/intranet/debrecen_hallgatoi/tananyagok/jegyzet/25-Adatbazisok.pdf	
Halassy Béla: Az adatbázisstervezés alapjai és titkai. 1994. http://mek.oszk.hu/11100/11123/11123.pdf	
Other guides:	
Kende M., Nagy I.: Oracle Példatár (SQL, PL/SQL) titled [http://analog.nik.uni-obuda.hu/ , 1H-82h_AB_OktatasiAnyagok könyvtár 00_Tankonyvek.zip subfolder	
Kende M., Nagy I.: Internetes adatbázis-alkalmazások fejlesztése titled [http://analog.nik.uni-obuda.hu/ , 1H-82h_AB_OktatasiAnyagok könyvtár 00_Tankonyvek.zip subfolder	
Oracle web-hely: http://apex.oracle.com	