General Information:

Name of Course:	**DATABASES _I**
Course Code:	IVB334MNMI
Semester:	2th
Number of Credits:	4
Allotment of Hours per Week:	2 Lectures+2 practical classes /Week
Evaluation:	**Exam**
Prerequisites:	**-**

Instructor:	**Dr Etelka SZENDRŐI, associate professor**
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Introduction, Learning Outcomes:

The students of Engineering are often required to deal with the huge amount of data. The students are expected to be aware of management of the data and its retrieval whenever need arises. This course concerns with the management of information and how to model it in structured manner. The use of database management, as an application tool to manipulate the information which has been modelled earlier, will provide the students a further step in order to apply an application of information technology in solving the problems of diverse spectrums of the field of Engineering.

The Databases course provides the students with an introduction to the core concepts in databases. It is centered around the core skills of identifying organizational information requirements, modeling them using conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques. The subject includes database building practice in MS SQL Server and MSACCESS environment, and writing queries in SQL language and creating forms and reports. The subject also includes XML usage.

General Course Description and Main Content:

Students will learn to

1. Understand the role of databases and database management systems in managing organizational data and information.
2. Understand the historical development of database management systems and logical data models.
3. Understand the basics of how data is physically stored and accessed.
4. Use at least one conceptual data modeling technique (such as entity-relationship modeling) to capture the information requirements for an enterprise domain.
5. Design high-quality relational databases.
6. Understand the purpose and principles of normalizing a relational database structure.
7. Design a relational database so that it is at least in 3NF.
8. Implement a relational database design using an industrial-strength database management system, including the principles of data type selection and indexing.
9. Use the data definition, data manipulation, and data control language components of SQL in the context of one widely used implementation of the language.
10. Apply Graphical User Interface techniques for retrieve the information from database

Methodology:

 – **Lectures**: will give introduction to the basic knowledge of characterise and design databases, manipulate data with SQL language
 – **Practices**: Students will be able to create databases, manipulate data, create SQL queries
 – **Exams**: Accumulated knowledge is tested by two semester exams, one midterm and a final exam. **In the exam period students will take the final exam of the subject**.

Schedule:

The rough outline of the schedule is as follows:
Week 1-3: Introducing Database Concepts.
- What is a database? What is DBMS? DBMS system architecture
- Entity-Relationship (ER) Data Model
- Relational Data Model

Week 4-7
- Mapping ER model to the Relational Model
- Functional Dependency
- Normal Forms
- Relational Algebra
- SQL Language

Week 8: **Midterm Exam**
Week 9: **Spring holiday**
Week 10-15: Practice of Database manipulation, SQL language
- Create database in MS SQL SERVER and MSAccess
- Create Tables, and Queries in SQL language
- Create Forms and Reports in MS_Access
- Create Stored Procedure, User Defined Functions
- Triggers
- Transactions

Week 15**: Final Exam.**

Exams in Examination time period: 23th of May 10 am;
25th of May 10 am;
31th of May 10 am.

Attendance:
Attending is required all classes, and will impact the grade (max. 10%). Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 10 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Grading:
The Course grade is determined as a combination of 1 midterm exam (45%), a final exam (45%) and attendance of lessons and practices (10%).

> All exams are closed-book and closed-notes. A student with a proper excuse of being absent from the examination must inform and get a permission from the teacher prior to the time of examination. Any students who do not take the examination at the scheduled time will receive a zero score.

Grading Scale:

Numeric Grade:	5	4	3	2	1
Evaluation in percent:	89%-100%	77%-88%	66%-76%	55%-65%	0-54%

The Final grade of the subject is: Combination of Course grade (40%) and Exam grade (60%) in Exam Period. Calculation of the Final Subject grade is described with the next formula: **0,4*Course grade+0,6*Exam grade in Examination time period.**

Students with Special Needs:
Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

Readings and Reference Materials:
Coronel / Morris: Database Systems Design, Implementation and Management (11th edition)
http://www.amazon.com/Database-Systems-Design-Implementation-Management/dp/1285196147/ref=sr_1_3?s=books&ie=UTF8&qid=1441841102&sr=1-3&keywords=database+systems+design+implementation+and+management

Ramez Elmasri, Shamkant B. Navathe: Fundamentals of Database Systems (7th Edition)
http://www.amazon.com/gp/product/0133970779?gwSec=1&redirect=true&ref_=s9_simh_gw_p14_d0_i27

http://microsoftvirtualacademy.com