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:	**-**

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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 environment, and writing queries in SQL language.

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.

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 one midterm semester test. **In the exam period students will take the final exam of the Databases I course**.

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 4-6
- Mapping ER model to the Relational Model
- Functional Dependency
- Normal Forms
- Relational Algebra
- SQL Language

Week 7-9:
- Practice of Database manipulation, SQL language
- Create database in MS SQL SERVER
- Create Tables, and Queries in SQL language

Week 10**: Spring holiday**
Week 11**: Midterm Test.**
Week 12-15
- Create Stored Procedure, User Defined Functions
- Triggers
- Transactions

The course will be held online (in Teams) until the school changes the education method of the semester.

Retaking the unsuccessful tests (below 51%) will be on 15th week.

Exams in Examination time period: 18th of May 10 am;
21th of May 10 am;
27th of May 10 am.
03th of June 10 am

Attendance:
Attendance is required at each lectures and practices. Unjustified absences will affect the rating. The student's final grade will fail, if the student's absence is more than 30% of the total number of lessons. Arriving to the class in time and staying until the end of the scheduled lesson is considered required. Being late of more than 15 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid justify, such as a doctor's note.

Grading:
In order to receive signature for the course, the student:
- should get minimum 51% score of the midterm test
- must be present at the 70% of the lessons.

Options of making up:
If the midterm test value is lower than 51%, **only once** the students may write again a test containing the whole semester material at last week of the semester and try to raise up the result % of their tests above 51%. The new result will be calculating with the next formula: **(midterm test%+retake test %)/2.**
Only those students may take the exam whose test result is equal or greater than 51%.

All tests and exams are closed-book and closed-notes. A student with a proper reason of being absent from the exam must inform and get a permission from the teacher prior to the time of test. **Any students who does not take the test at the scheduled time will receive a zero score.**

Grading Scale:

Numeric Grade:	5 A excellent	4 B(good)	3 C average	2 D satisfactory	1 (options of making up) F fail
Evaluation in percent:	89%-100%	77%-88%	66%-76%	52%-65%	0-51%

Final grade:

The Final grade of the Course is the Combination of semester grade (30%) and Exam score (70%) taken in Exam Period. Calculation of the Final grade of the course is described with the next formula: **0,3*semester grade+0,7*Exam score 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

Lectures and practice materials in Meet Street of Neptun Education System.