**NEU, Department of Computer Information Systems**

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| **Course Unit Title** | Database Managemet System |
| **Course Unit Code** | CIS 246 |
| **Type of Course Unit** | Compulsory |
| **Level of Course Unit** | Bachelor’s degree |
| **National Credits** | 3 |
| **Number of ECTS Credits Allocated** | 7 ECTS |
| **Theoretical (hour/week)** | 2 |
| **Practice (hour/week)** | - |
| **Laboratory (hour/week)** | 2 |
| **Year of Study** | 2 |
| **Semester when the course unit is delivered** | 2 |
| **Course Coordinator** |  |
| **Name of Lecturer (s)** | Assist. Prof. Dr. Seren BAŞARAN |
| **Name of Assistant (s)** | None |
| **Mode of Delivery** | Lecturing+cooperative learning;This course utilizes the Moodle course management system to share information and resources. To access the course site, log on to this link: http://lms.neu.edu.tr and select the course from list of courses. All course materials will be posted here. |
| **Language of Instruction** | English |
| **Prerequisites and co-requisites** | CIS 243 |
| **Recommended Optional Programme Components** | - |
| **Objectives of the Course:**1. learn techniques required to implement good database design both in theory and in practice
2. gain general perspective on most recent databases used in today’s computing world: SQLMS Access etc
3. understand and use relational database design and Structured Query Language (SQL) used with relational databases.
4. understand and use Entity-Relationship diagrams and normalization of data.
5. overview the functions of database management systems (DBMS) and of a database administrator (DBA).
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| **Learning Outcomes** |
| When this course has been completed the student should be able to | Assessment. |
|  | 1. Understand the database concepts, different database models, and database management systems.
 | 1 |
|  | 1. Understand relational database theory and be able to use a relational database management system.
 | 1 |
|  | 1. Be able to use advanced SQL to create, manipulate, and query databases.
 | 3 |
|  | 1. Understand the database development processes and activities.
 | 2 |
|  | 1. Understand data modeling concepts and their application in design and development process.
 | 2 |
|  | 1. Be able to develop, design, and construct a typical enterprise database.
 | 5 |
|  | 1. Be able to apply proper techniques, such as normalization, in designing a database.
 | 5 |
|  | 1. Be able to use commercially available database management systems such as Access & SQL.
 | 5 |
|  | 1. Be familiar with a broad range of database management issues including data integrity, security, and recovery
 | 4 |
| Assessment Methods: 1. Written Exam, 2. Assignment 3. Project/Report, 4.Presentation, 5 Lab. Work |
| **Course’s Contribution to Program** |
|  |  | **CL** |
| 1 | Apply computer technology to address business information system needs. | 5 |
| 2 | Demonstrate a deeper understanding of at least one area of computing, such as programming, networking, technical support or web technology, enabling the student to gain employment in the information systems field. | 5 |
| 3 | Demonstrate critical thinking in understanding, evaluating and applying technology solutions to real life problems. | 4 |
| 4 | Demonstrate familiarity with e-commerce resources, tools, including web programming, publishing, database management tools. | 5 |
| 5 | Articulate ethical and professional standards to the use of computer information systems andcomputer based data. | 3 |
| 6 | Effectively use personal, interpersonal and communication skills in team work, time management in projects and self-learning. | 3 |
| 7 | Grow professionally through continuing education, research and development, and involvement in professional activities to recognize the need to engage in continuing professional development and lifelong learning. | 5 |
| 8 | Identify, analyze and develop solutions for information systems-related businessproblems/opportunities. | 5 |
| 9 | Demonstrate knowledge of current information, theories and models, and techniques and practices in all of the major business disciplines including the general areas in information technologies. | 5 |
| CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate 4: High, 5:Very High) |

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| **Course Contents** |
| **Week** | **Chapter** |  | **Pratice** |
| 1 | 1 | Introducing MS Access and database management systems. Identify main differences between MS Excel and MS Access regarding database usage. Identifying fields, tables and records in a database  | MS Access database exercise, creating tables, forms, reports, queries, reports |
| 2 | 1 | Database, tables, Tools, Primary Key, Foreign Key | Database exercises using relationships (1-1, M-M, 1-M/M-1) |
| 3 | 2 | Introduction to Relational Databases: Entities, Attributes, Relationships, Primary Keys and Foreign Keys | Creating tables in Microsoft Access, defining relations between tables |
| 4 | 2 | Entity - Relationship diagram, defining entities and relationships | Apply entity-relationship model in Ms Access |
| 5 | 3 | Converting database tables into entity-relationship diagrams (ERDs)and defining database schema | Drawing entity-relationship diagrams (ERDs)from actual tables and relationships defined in a database |
| 6 | 3 | **Review** |
| 7 | 4 | **Mid-term** |
| 8 | 5 | Introducing SQL(structured query language) | SQL query exercise using create, select, update and some operators; LIKE, BETWEEN, ?, \_,\* |
| 9 |  | Learning basic commands in SQL such as; insert into, delete, drop table | SQL exercise by executing SQL commands in MS Access as insert into, delete, drop table |
| 10 | 6 | SQL : More DML Statements : Insert, Delete and Update operations, Alter table etc. | Access Forms and using SQL commands in Microsoft Access (insert, delete, update, alter table etc.) |
| 11 | 7 | Introduction to Normalization: UNF, 1NF, 2NF Dependencies, 3NF | Normalization exercises |
| 12 | 7 | Database project presentation | **Project Assignment** |
| 13 | 8 | Normalization and de-normalization | Normalization exercises and using normalized tables in Microsoft Access |
| 14 | 8 | **Review** |
| 15 |  | **Final** |
| **Recommended Sources****Textbook:** Database Management Systems: A practical Approach to Design, Implementation, and Management**Supplementary Material (s):*** Database Management Systems, 3rd Edition, Raghu Ramakrishnan, Johannes Gehrke, 2003, ISBN-13: 978-0072465631 ISBN-10: 0072465638

Peter Rob, Carlos Coronel (2007).Database Systems: Design, Implementation, and Management Course Technology; 8 edition * Ramez Elmasri, (2006) Fundamentals of Database Systems. *University of Texas at Arlington* Shamkant B. Navathe, *Georgia Institute of Technology*. Addison Wesley; 5 edition
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| **Assessment** |
| Project | 20% |  |
| Midterm Exam (Written) | 20% |  |
| Final Exam (Written) | 40% |  |
| Total | 100% |  |
| **ECTS Allocated Based on the Student Workload** |
| **Activities** | **Number** | **Duration****(hour)** | **Total****Workload(hour** |
| Course duration in class (including the Exam week) | 15 | 4 | 60 |
| Exercises&Assignments | 15 | 2 | 30 |
| Project/Report Writing | 1 | 19 | 19 |
| E-learning Activities | 13 | 3 | 39 |
| Midterm Examination | 1 | 1 | 1 |
| Final Examination | 1 | 1 | 1 |
| Self-Study | 15 | 4 | 60 |
| Total Workload | 210 |
| Total Workload/30 (h) |  7 |
| ECTS Credit of the Course | 7 |