**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). | | | | | | | |
| **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 and  computer 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 business  problems/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 | | | | | | | | | | |
| **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 | |