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| **ISHIK UNIVERSITY FACULTY OF SCIENCE Department of INFORMATION TECHNOLOGY,2017-2018 Spring Course Information for** **IT 226 DATABASE SYSTEMS II** |

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| --- | --- |
| **Course Name:** | DATABASE SYSTEMS II |
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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| IT 226 | 2 | 4 | 2 | 2 | 3 |  |

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| **Name of Lecturer(s)-Academic Title:** | MUSA M.AMEEN - MA |
| **Teaching Assistant:** | Mr. Rebin Mohammed |
| **Course Language:** | English |
| **Course Type:** | Non-area Elective |
| **Office Hours** | Tuesday after 14:30-16:00, Thursday after 14:30-15:30 |
| **Contact:** | Email:musa.ameen@ishik.edu.iq Tel:  |
| **Teacher's academic profile:** | BSc Degree in Computer Engineering. MSc Degree in Computer Engineering. Lecturer in Ishik University  |
| **Course Objectives:** | Database systems are important to business, industry and science. IT professionals need to critically assess the opportunities and implications presented by such systems. They also need the expertise and acumen to select, develop, manage and exploit these systems. This is course continue of IT-215 Database Systems I. Main objective of Database Systems-II course is to provide topics about introduction, intermediate and advanced SQL (Structured Query Language). It includes representing information with the relational database model, manipulating data with an interactive query language (SQL) and database programming, database development, views and functions. |
| **Course Description (Course overview):** | This course is the 2nd part of the Database Systems. Normalization - Denormalization, SQL, Aggregate Functions. Joining Tables, Indexing and Optimization |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 2 | 4-8/2/2018 | Intro to Database |
| **2** | 2 | 11-15/2/2018 | Revision Database-I |
|  |  |  |  |
| **3** | 2 | 18-22/2/2018 | Intro to SQL. DDL |
| **4** | 2 | 25/2-1/3/2018 | Basic query structure. Select, From, Where clauses |
|  |  |  |  |
| **5** | 2 | 4-8/3/2018 | Intermediate SQL. Join Operations |
| **6** | 2 | 25-29/3/2018 | Views |
|  |  |  |  |
| **7** | 2 | 1-5/4/2018 | Midterm Exam |
| **8** | 2 | 8-12/4/2018 | Integrity constraints. Cascading actions |
|  |  |  |  |
| **9** | 2 | 15-19/4/2018 | Midterm Exam |
| **10** | 2 | 22-26/4/2018 | Index. User-defined types |
|  |  |  |  |
| **11** | 2 | 29/4-3/5/2018 | Authorization. Priviliges. Revoking priviligies |
| **12** | 2 | 6-10/5/2018 | Roles. Authorization on views |
|  |  |  |  |
| **13** | 2 | 13-17/5/2018 | Advanced SQL. Functions. Triggers |
| **14** | 2 | 20-24/5/2018 | User Privileges |
|  |  |  |  |
| **15** | 2 | 27-31/5/2015 | Project submission and Review |
| **16** | 2 | 3-7/6/2018 | Final Exam |
|  |  |  |  |
| **17** | 2 | 10-14/6/2018 | Final Exam |

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| **COURSE/STUDENT LEARNING OUTCOMES**

|  |  |
| --- | --- |
|  |  |
| **1** | Design, implement and report on significant software components of a database system according to analysis of requirements and specified constraints |
| **2** | Creating a database solution to an information technology problem and evaluate the role of database management systems in information technology applications within organisations |
| **3** | Applying the relational database design and data modeling using entity-relationship (ER) model and identify the concepts of constraints and relational algebra operations |
| **4** | Implement SQL: Data definition, constraints, schema, queries and operations in SQL and defining well structured databases using functional dependencies and normalization |
| **5** | Demonstrate the ability to declare, define, and access relational database schemas in relational database management systems using the data definition language subset of SQL |

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| **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES**(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

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| --- | --- | --- |
|  | **Program Learning Outcomes** | **Cont.** |
| **1** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution | A |
| **2** | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs | P |
| **3** | An ability to function effectively on teams to accomplish a common goal | P |
| **4** | An understanding of professional, ethical, legal, security, social, and economic issues and responsibilities |  |
| **5** | An ability to analyze the local and global impact of computing on individuals, organizations, and society |  |
| **6** | An ability to use current techniques, skills, and tools necessary for computing practice |  |
| **7** | An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies | P |
| **8** | An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems | I |
| **9** | An ability to effectively integrate IT-based solutions into the user environment |  |
| **10** | An ability apply problem solving skills, core IT concepts, best practices and standards to information technologies |  |
| **11** | An ability to identify and evaluate organizational requirements and current and emerging technologies |  |
| **12** | An ability to select, design, integrate and administer IT-based solutions into the organizational environment | P |

 |
| **Prerequisites (Course Reading List and References):** | IT 215 Database Systems I |
| **Student's obligation (Special Requirements):** | - Attending lectures on time - Not disturbing class during lectures - Submitting assignments and project on time - Studying regularly after each lecture. |
| **Weekly Laboratory/Practice Plan:** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topics** |
| 1 | 2 | 4-8/2/2018 | Revising intro to Database |
| 2 | 2 | 11-15/2/2018 | Intro to MySQL Workbench |
|  |  |  |  |
| 3 | 2 | 18-22/2/2018 | Start University project Relational DB design |
| 4 | 2 | 25/2-1/3/2018 | Queries on University DB |
|  |  |  |  |
| 5 | 2 | 4-8/3/2018 | Joining relations of University DB |
| 6 | 2 | 25-29/3/2018 | Building Views of University DB relations |
|  |  |  |  |
| 7 | 2 | 1-5/4/2018 | Midterm ExamCascading actions with integrity constraints |
| 8 | 2 | 8-12/4/2018 | Cascading actions with integrity constraintsWriting complex check clauses |
|  |  |  |  |
| 9 | 2 | 15-19/4/2018 | Writing complex check clauses |
| 10 | 2 | 22-26/4/2018 | Building Indexes and User-defined types |
|  |  |  |  |
| 11 | 2 | 29/4-3/5/2018 | Authorizing users and privligies on University DB |
| 12 | 2 | 6-10/5/2018 | Writing functions to retrieve needed data from the University DB |
|  |  |  |  |
| 13 | 2 | 13-17/5/2018 | Procedures, Functions, and Triggers |
| 14 | 2 | 20-24/5/2018 | User Privileges |
|  |  |  |  |
| 15 | 2 | 27-31/5/2015 | Submitting individual projects and Review |
| 16 | 2 | 3-7/6/2018 | Final Exam |
|  |  |  |  |
| 17 | 2 | 10-14/6/2018 | Final Exam |

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| **Course Book/Textbook:** | A.Silberschatz, Henry F.Korth, S.Sudarshan, Database System Concepts, 6th edition, 2010 |
| **Other Course Materials/References:** | http://www.ishik.edu.iq/engineering/computer/musa-m-ameen/ |
| **Teaching Methods (Forms of Teaching):** | Lectures, Practical Sessions, Excersises, Presentation, Project, Assignments, Case Studies |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Quiz | 1 | 10 |
| Project | 1 | 15 |
| Midterm Exam(s) | 1 | 25 |
| Presentation | 1 | 10 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**Essay Questions, True-False, Fill in the Blanks, Short Answers |  |  |

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| **Extra Notes:** |
| **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Quantity** | **Duration (Hour)** | **Total Work Load** |
| Course Duration (Including the exam week: 16x Total course hours) |  |  | 0 |
| Hours for off-the-classroom study (Pre-study, practice) |  |  | 0 |
| Assignments Mid-terms |  |  | 0 |
| Final examination |  |  | 0 |
| Other |  |  | 0 |
| **Total Workload** | **0** |
| **ECTS Credit (Total workload/25)** | **0** |

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**Peer review**

|  |  |  |
| --- | --- | --- |
| Signature: | Signature: | Signature: |
| Name: | Name: | Name: |
| Lecturer                                                                       | Head of Department                                                         | Dean |

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