

Faculty of Computers & Information Technology

Database Systems-1

Information :

Course Code : ISY 211

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Faculty of Computers & Information Technology

Instructor Information :

| Title | Name | Office hours |
|---------------------|--|--------------|
| Associate Professor | Manal Abdel Kader Abdel Fattah Youssif | |
| Assistant Lecturer | Mohamed Mahmoud Hasan Hamada | |
| Assistant Lecturer | Mohamed Attia Mohamed | |

Area Of Study :

Basic concepts, database system environment, DBMS components and architecture, database design process, high-level data models, ER and EER models, the relational data model, relational languages, SQL, Data Definition Language (DDL), Data Manipulation Language (DML), introduction to functional dependencies and normalization, social and ethical context of databases.

Description :

The main objective of this course is to provide students with the background to design, implement, and use database management systems. Topics Include: Evolution of database management systems, Relational Data Model and Relational Algebra, Structured Query Language, Entity Relationship Modeling and Design, ERM to RM Conversion, Tables Normalization, Forms/ Reports/ Menus Implementation

Upon successful completion of this course, students will have the skills to analyze business requirements and produce a viable model and implementation of a database to meet such requirements

Course outcomes :

a.Knowledge and Understanding: :

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| 1 - | • Demonstrate knowledge and understanding of the database system concepts, and DBMS functions & architecture |
| 2 - | • Demonstrate knowledge and understanding of a generic procedure to design a database system |
| 3 - | • Demonstrate knowledge and understanding of relational data model |
| 4 - | • Demonstrate knowledge and understanding of the relational integrity constraints |

b.Intellectual Skills: :

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| 1 - | • Employ analytical skills as appropriate during database design and manipulation process |
| 2 - | • Analyze and define the data requirements of a database |
| 3 - | • Model the data requirements in the Entity-Relationship Data Model |
| 4 - | • Design and implement a database in the relational data model |

c. Professional and Practical Skills: :

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| 1 - | • Use SQL/DDDL to create and maintain a relational database. |
| 2 - | • Use SQL/DML to perform data processing operations (Insert, Update, Delete, and Select) on relational database |
| 3 - | • Use SQL/DCL to enforce data security, control data processing operations and manage user accounts. |

d. General and Transferable Skills: :

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| 1 - | • Apply techniques of database analysis, design and implementation using a RDBMS (Oracle) |
| 2 - | • Research on emerging applications of database systems |

Course Topic And Contents :

| Topic | No. of hours | Lecture | Tutorial / Practical |
|--|--------------|---------|----------------------|
| Basic Concepts of Database Systems | 3 | 2 | 2 |
| Database Models and Languages | 3 | 2 | 2 |
| Data Modeling Using the ER Model. | 3 | 2 | 2 |
| The Relational Data Model | 3 | 2 | 2 |
| ER-to-Relational Mapping | 3 | 2 | 2 |
| Database Design Applications | 3 | 2 | 2 |
| Data Processing Operations | 3 | 2 | 2 |
| Relational Language: Structured Query Language (SQL) | 3 | 2 | 2 |
| Data Definition Language (DDL) of SQL | 3 | 2 | 2 |
| Data Manipulation Language (DML) of SQL | 3 | 2 | 2 |
| Database Security | 3 | 2 | 2 |

Teaching And Learning Methodologies :

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| Lectures |
| Exercises |
| Practical training |
| Presentation |
| Projects |
| Case Study |

Course Assessment :

| Methods of assessment | Relative weight % | Week No | Assess What |
|-----------------------|-------------------|---------|-------------|
| Final Exam | 40.00 | 15 | |
| Midterm Exam I | 15.00 | 6 | |
| Midterm Exam II | 15.00 | 12 | |
| Project | 20.00 | 14 | |
| Research/Presentation | 10.00 | 14 | |

