# Course Description Template Course Description

This course description provides a concise summary of the main features of the course and the expected learning outcomes for the student to achieve, demonstrating whether they have made the most of the available learning opportunities. It is essential to link this description with the program description.

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| 1. ****Educational Institution**** | **Shatt Al-Arab University** |
| **2. Scientific Department** | **Computer Science** |
| **3. Module Code** | **Database Systems** CS209 |
| **4. The available attendance types** | **Mandatory** |
| **5. Year** | **2024 - 2025** |
| **6. SWL (hr/sem)** | **150** |
| **7. Date** | **2024** |
| **8. Module Aims:**  The objective of this course is to introduce students to database management systems. It helps the student to present an actual practical project on realistic interaction and acquisition of skills by collecting information and dealing with a real institution through open discussion with the professor and his fellow students. Topics include  1. Data, Information, and File system  2. Database and database users  3. Database system concepts and architecture  4. Data modeling using the Entity Relationship Diagram (ERD)  5. The relational data model and relational data constraints  6. Functional dependencies and normalization for relational databases  7. The Relational Algebra,  8. Relational database design for ER to relational mapping  9. Organization records in the file  9. Disk storage, basic file structure and hashing,  10. SQL schema definition, constraints, queries and views.  11. Acquisition of skills by using some functions of MSAccess. | |

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| **9. Module Learning Outcomes**  1. Describe database concepts and architecture including query processing and optimization.  2. Design logical and mathematical models to organize data within a database.  3. Learn about the capabilities of Microsoft Access in designing Database.  4. Preparing the student to design a database of medium complexity using Access tools.  5. The student gains self-confidence as a result of acquiring knowledge of how to deal with data and organize them into tables that facilitate the process of storage and retrieval .  6. Develop skills to work in a group project to produce quality deliverables.  7. At the end of the chapter, the student achieves theoretical knowledge and practical capabilities in building an integrated database system |
| **Learning and Teaching Strategies** |
| The main strategy that will be adopted in delivering this module is to encourage students’ participation in the exercises, while at the same time refining and expanding their thinking skills. This will be achieved through classes, Labs. and interactive discussions. |
| **Module Evaluation** |
| **Quizzes**  10% (10)  **Assignments**  10% (10)  **Report**  10%  **Projects / Lab.**  10%  **Midterm Exam**  10%  **Final Exam**  50% |
| 10. Course Structure |

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| **Weeks** | **Study Hours** | **Subject** | **Intended Learning Outcomes** |  |
| **Week1** |  | **Introduction to Database** |  |  |
| **Week2** |  | **Characteristics of Database** |  |  |
| **Week3** |  | **Main phases of database design** |  |  |
| **Week4** |  | **Main phases of database design** |  |  |
| **Week5** |  | **Constructing an ER model** |  |  |
| **Week6** |  | **ER Diagram Symbols and Notations** |  |  |
| **Week7** |  | **How to Draw ER Diagrams, ER Diagram Best Practices, Exercises** |  |  |
| **Week8** |  | **THE RELATIONAL ALGEBRA** |  |  |
| **Week9** |  | **THE RELATION AL ALGEBRA** |  |  |
| **Week10** |  | **THE RELATIONAL ALGEBRA** |  |  |
| **Week11** |  | **THE RELATIONAL ALGEBRA** |  |  |
| **Week12** |  | **Files and Records** |  |  |
| **Week13** |  | **Organizing records in the file** |  |  |
| **Week14** |  | **File Headers** |  |  |
| **Week15** |  | **Hashing Techniques**  **Hashing Function** |  |  |

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| 11. Recommended Books and References | |
| Database System Concepts Fourth Edition” by Abraham Silberschatz Henry F. Korth S. Sudarshan , McGraw-Hill ISBN 0-07-255481-9   Database Concepts 6th Edition, David M. Kroenke,David J. Auer | Prescribed Textbooks | |
|  | Main References (Sources) | |
| Access 2013 the missing manual, Matthew macdonald   FUNDAMENTALS OF Database Systems 6th EDITION, Ramez Elmasr | Recommended References | |
| https://link.springer.com/book/10.1007/978-3-540-48399-1 | Electronic References | |

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| 12.خطة تطوير المقرر الدراسي |
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