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| | Hashemite University<br>Prince Al-Hussein bin Abdullah II Faculty for Information Technology<br>Department of Computer Information Systems | |

**Course Syllabus**

**Year: 2020-2021** **Semester: (1)**

| Course No. | Course Title | Designation | Prerequisite | Co-requisite | Credit Hours Lectures /Lab. |
|---|---|---|---|---|---|
| 151002240 | Introduction to Database Systems | Required | 151001250 | - | 3 / 0 |

| Instructor Name | E-mail | Office No. | Office Ext. | Office Hours |
|---|---|---|---|---|
| Dr. Majdi Maabreh | majdi@hu.edu.jo | 222 | 4404 | Sun, Tue, Thu (10-11) |

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| **Coordinator's Name:** | Dr. Majdi Maabreh |

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| **Course Description** | This course is on the design and implementation of relational database systems. Topics include Database users and fundamental concepts, relational database model and constraints, conceptual modeling and database design, ER/EER to relational mapping, functional dependencies, and normalization of the relational database. SQL is also an integral part of the course which includes mainly DDL and DML commands. Case studies of real-life scenarios are used to illustrate how relational database technology can support organizations in advances their business. |

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| a) **Textbook (s):** |
| 1. Elmasri R. and Navanthe S. B., "Fundamentals of Database Systems", 5th & 6 edition, ISBN (0-805317554), Addison Wesley. |
| **b) Additional References:** |
| 1. Silberschatz, Korth and Sudarshan, "Database System Concepts", 4th edition, Mc Graw Hill, 2002. |
| 2. Thomas Connolly et. al., "Database Systems, A Practical Approach to Design, Implementation and Management", Addison Wesley, 1996. |

| Course Learning Outcomes CLOs |
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| 1. **Understand** theoretical knowledge and practical experiences in the fundamental aspects of database design and implementation (1,2) |
| 2. **Develop** an enterprise data model that reflects the organization's fundamental business rules (2,5) |
| 3. **Explain** conceptual design methodologies for a database and learn about architectures and environment of the database management system (1,3) |
| 4. **Apply** normalization techniques (1) |
| 5. **Develop** and refine the conceptual data model, including all entities, relationships, attributes, and business rules (1,2) |
| **Addressed Student Learning Outcomes (SLOs)** |
| 1,2,3,5 |

| Topic Details | CLO number | Reference | No. of Weeks | Contact hours* |
|---|---|---|---|---|
| 1. Databases and Database Users | 1 | 1 | 2 | 6 |
| 2. SQL: Schema Definition, Constraints, Queries (DDL, DML) | 2 | 2, 3 | 3 | 9 |
| 3. The Relational Data Model and Relational Database Constraints | 2 | 4 | 2 | 6 |
| 4. Data Modeling Using the Entity-Relationship (ER) Model | 3 | 5 | 2 | 6 |
| 5. The Enhanced Entity-Relationship (EER) Model | 6 | 6 | 1 | 3 |
| 6. Relational Database Design by ER and EER-to-Relational Mapping | 5 | 7 | 2 | 6 |
| 7. Functional Dependencies and Normalization for Relational Databases | 4 | 8 | 3 | 9 |
| Total | | | 15 | 45 |

| Assessment method | Grade | Comments |
|---|---|---|
| Midterm Exam | 30% | Covers Chapters 1,2,3,4 |
| Assignments, project, or quizzes | 20% | |
| Final Exam | 50% | Covers all topics |
| Total | 100% | |