



Course Specification

— (Bachelor)

Course Title: Fundamentals of Database

Course Code: IS 213

Program: Computer Science / Information Technology

Department: Information Systems

College: College of Computer and Information Sciences

Institution: Majmaah University

Version: TP-153(2023)

Last Revision Date: 16-9-2023



Table of Contents

| | |
|---|---|
| A. General information about the course: | 3 |
| B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods | 4 |
| C. Course Content | 5 |
| D. Students Assessment Activities | 6 |
| E. Learning Resources and Facilities | 6 |
| F. Assessment of Course Quality | 7 |
| G. Specification Approval | 7 |



A. General information about the course:

1. Course Identification

1. Credit hours: (3)

(3+0+1)

2. Course type

A. University College Department Track Others
 B. Required Elective

3. Level/year at which this course is offered: (Level-4)

4. Course general Description:

This course includes the following topics:

Database concepts and architecture; data models, database schemes and instances, DBMS and the concept of program-data independence, database languages and interfaces, database models, relational data model and relational algebra, relational model constraints; domains, keys, and integrity constraints, the structured query language (SQL); data definition, queries, update, statements, and views in SQL, database design; functional dependencies, normal forms.

5. Pre-requirements for this course (if any):

CS 131

6. Pre-requirements for this course (if any):

NA

7. Course Main Objective(s):

The main purpose for this course, Understand the basics and concepts of database systems. Design, implement and evaluate a computer-based DB system to meet desired users' needs, use professionally Structured Query Language (SQL) and understand SQL processing

2. Teaching mode (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|----|-----------------------|---------------|------------|
| 1 | Traditional classroom | 60 | 100% |
| 2 | E-learning | | |
| 3 | Hybrid | | |



| No | Mode of Instruction | Contact Hours | Percentage |
|----|---|---------------|------------|
| | <ul style="list-style-type: none"> Traditional classroom E-learning | | |
| 4 | Distance learning | | |

3. Contact Hours (based on the academic semester)

| No | Activity | Contact Hours |
|--------------|-------------------|---------------|
| 1. | Lectures | 45 |
| 2. | Laboratory/Studio | |
| 3. | Field | |
| 4. | Tutorial | 15 |
| 5. | Others (specify) | |
| Total | | 60 |

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------------|--|-----------------------------------|---------------------|---|
| 1.0 | Knowledge and understanding | | | |
| 1.1 | Understand how to use databases in day-to-day applications. | K1 | lecture, lab | Class Test, Mid Exam, Final Exam |
| 1.2 | Familiar with a broad range of data management issues including data integrity and security. | K1 | lecture, lab | Class Test, Mid Exam, Final Exam |
| ... | | | | |
| 2.0 | Skills | | | |
| 2.1 | Design a table by applying suitable normal forms | S2 | lecture, lab | Class Test, Mid Exam, Final Exam, Assignments, Mini Project |
| 2.2 | Write and modify SQL query. | S2 | lecture, lab | Class Test, Mid Exam, Final |



| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|------------|---|-----------------------------------|---------------------|---|
| | | | | Exam, Assignments, Mini Project |
| 2.3 | Create databases and use complex SQL queries in relational databases. | S4 | lecture, lab | Class Test, Mid Exam, Final Exam, Assignments, Mini Project |
| 3.0 | Values, autonomy, and responsibility | | | |
| 3.1 | | | | |
| 3.2 | | | | |
| ... | | | | |

C. Course Content

| No | List of Topics | Contact Hours |
|--------------|---|---------------|
| 1. | Database concepts and architecture | 4 |
| 2. | Data models, database schemes and instances | 4 |
| 3. | DBMS and the concept of program-data independence | 4 |
| 4. | Database languages and interfaces | 4 |
| 5. | Database models, relational data model and relational algebra, relational model constraints | 4 |
| 6. | Domains, keys, and integrity constraints, Structured query language (SQL); data definition, queries | 8 |
| 7. | Update, statements | 4 |
| 8. | DCL Statements | 4 |
| 9. | Views in SQL | 4 |
| 10. | Database design | 8 |
| 11. | Functional dependencies | 4 |
| 12. | Normal forms and Examples | 8 |
| Total | | |





D. Students Assessment Activities

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|----|-------------------------|--------------------------------|--------------------------------------|
| 1. | Quizzes | Week 4, Week 12 | 15% |
| 2. | Assignments | Week 7, Week 13 | 10% |
| 3. | Mid Term Exam | Week 8 | 20% |
| 4. | Exercise | Every Week | 10% |
| 5. | Class Participation | Every Week | 5% |
| 6. | Final Exam | Week 16 | 40% |

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

| | |
|---------------------------------|--|
| Essential References | Carlos Coronel, Steven Morris, and Peter Rob, Database Principles: Fundamentals, Design, Implementation, and Management, Cengage Learning, 10th edition, 2013. |
| Supportive References | Jeffrey D Ulman, Jenifer Widom, a first course in Database Systems, Pearson New International Edition, 3rd edition, 2007 Ramakrishnan, Gehrke, Database Management Systems, Mc Graw Hill, 3rd edition, 2002 |
| Electronic Materials | IEEE Computer Society – Participation in Webinars and discussions through blogs |
| Other Learning Materials | |

2. Required Facilities and equipment

| Items | Resources |
|---|---|
| facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.) | Classroom |
| Technology equipment (projector, smart board, software) | PC or Laptop with Windows/Linux, Smart Board, Projector |
| Other equipment (depending on the nature of the specialty) | Internet Connection |



F. Assessment of Course Quality

| Assessment Areas/Issues | Assessor | Assessment Methods |
|---|----------------------|--------------------|
| Effectiveness of teaching | Students | Survey |
| Effectiveness of Students assessment | Peer faculty members | Review |
| Quality of learning resources | Students | Survey |
| The extent to which CLOs have been achieved | Instructor | Direct |
| Other | | |

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

| | |
|---------------------------|--|
| COUNCIL /COMMITTEE | |
| REFERENCE NO. | |
| DATE | |

