



Course Specifications

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|----------------------|---|
| Course Title: | Fundamental of Databases |
| Course Code: | 502372-3 |
| Program: | Bachelor in Computer Science |
| Department: | Department of Information Technology |
| College: | College of Computers and Information Technology |
| Institution: | Taif University |

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A. Course Identification

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|--|
| 1. Credit hours: 3 |
| 2. Course type |
| a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/> |
| b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/> |
| 3. Level/year at which this course is offered: 8/3 |
| 4. Pre-requisites for this course (if any): 501220-3 |
| 5. Co-requisites for this course (if any): None |

6. Mode of Instruction (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|----|-----------------------|---------------|------------|
| 1 | Traditional classroom | 8 | 100% |
| 2 | Blended | 0 | 0 |
| 3 | E-learning | 0 | 0 |
| 4 | Distance learning | 0 | 0 |
| 5 | Other | 0 | 0 |

7. Contact Hours (based on academic semester)

| No | Activity | Contact Hours |
|----|-------------------|---------------|
| 1 | Lecture | 50 |
| 2 | Laboratory/Studio | 30 |
| 3 | Tutorial | 0 |
| 4 | Others (specify) | 0 |
| | Total | 80 |

B. Course Objectives and Learning Outcomes

1. Course Description

This course will introduce the basic concepts in database systems and architectures, including data models, database design, and database implementation. Its emphasis on topics in ER model and relational databases, including relational data model, SQL, functional dependency and normalization, database design process.

2. Course Main Objective

The main objective of this course is to Learn the students basics of databases and approaches to store data using databases, the data modelling concepts and notation of the entity-relationship model, including their use in data modelling, design and construct relational databases using the concept of relational data model, database queries in relational algebra and implement using SQL and normalization rules for designing databases.



3. Course Learning Outcomes

| CLOs | | Aligned PLOs |
|------|--|--------------|
| 1 | Knowledge and Understanding | |
| 1.1 | Describe basics of databases and approaches to store data. | K1 |
| 1.2 | Describe the data modelling concepts and notation of ER and the relationship model | K1 |
| 2 | Skills : | |
| 2.1 | Design and construct databases using the concepts of ER and relational models | S2 |
| 2.2 | Implement database using SQL | S1 |
| 2.3 | Enhance databases using normalization rules | S2 |
| 3 | Values: | |
| 3.1 | Function effectively as a member or leader of a team engaged in activities to build a database for some organization | V3 |

C. Course Content

| No | List of Topics | Contact Hours |
|--------------|--|---------------|
| 1 | Databases and Database Users | 8 |
| 2 | Database System Concepts and Architecture | 8 |
| 3 | Data Modeling Using the Entity-Relationship (ER) Model | 8 |
| 4 | The Relational Data Model and Relational Database Constraints | 8 |
| 5 | Relational Database Design by ER-to-Relational Mapping | 8 |
| 6 | Basics of SQL | 8 |
| 7 | Advanced SQL | 8 |
| 8 | Relational Algebra | 16 |
| 9 | Functional Dependencies and Normalization for Relational Databases | 8 |
| Total | | 80 |

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------|--|-----------------------------------|--|
| 1.0 | Knowledge and Understanding | | |
| 1.1 | Describe basics of databases and approaches to store data. | Lecture Discussion | Written Exams Assignments |
| 1.2 | Describe the data modelling concepts and notation of ER and the relationship model | Lecture Discussion | Written Exams Assignments |
| 2.0 | Skills | | |
| 2.1 | Design and construct databases using the concepts of ER and relational models | Lecture Discussion | Written Exams Assignments Practical Exam |
| 2.2 | Implement database using SQL | Lecture Discussion Lab work | Written Exams Assignments Practical Exam |



| Code | Course Learning Outcomes | Teaching Strategies | Assessment Methods |
|------|--|-----------------------------------|--|
| 2.3 | Enhance databases using normalization rules | Lecture Discussion Lab work | Written Exams Assignments Practical Exam |
| 3.0 | Values | | |
| 3.1 | Function effectively as a member or leader of a team engaged in activities to build a database for some organization | Discussion Work group | Reports Oral Presentations |

2. Assessment Tasks for Students

| # | Assessment task* | Week Due | Percentage of Total Assessment Score |
|---|------------------|----------|--------------------------------------|
| 1 | Assignments | 10 | 5% |
| 2 | Mid Exam | 6 | 20% |
| 3 | Minor project | 10 | 15% |
| 4 | Labs | 11 | 20% |
| 5 | Final Exam | 12 | 40% |

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer “at risk” students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1. Learning Resources

| | |
|---------------------------------------|---|
| Required Textbooks | Fundamentals of Database Systems, Ramez Elmasri, Shamkant Navathe, Pearson, latest Edition, |
| Essential References Materials | Fundamentals of Database Management Systems, Gillenson, Wiley, latest Edition, |



| | |
|---------------------------------|-------------------------------------|
| Electronic Materials | Presentations and recorded lectures |
| Other Learning Materials | NON |

2. Facilities Required

| Item | Resources |
|--|--|
| Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) | <ul style="list-style-type: none"> A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board. |
| Technology Resources (AV, data show, Smart Board, software, etc.) | <ul style="list-style-type: none"> Lab materials and required software |
| Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | |

G. Course Quality Evaluation

| Evaluation Areas/Issues | Evaluators | Evaluation Methods |
|--|----------------------|--|
| Effectiveness of Teaching | Students | Students surveys and Students course evaluation |
| Improvement of Teaching | Course Coordinator | deficiencies based on the student Evaluation, faculty input, course file, and program assessment |
| Verifying Standards of Student Achievement | Curriculum Committee | <ul style="list-style-type: none"> Review CAF (Course assessment file) Alumni surveys. Periodic exchange and remarking of tests or a sample of assignments with staff at another |

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

| | |
|----------------------------|-------------|
| Council / Committee | CS council |
| Reference No. | Meeting #12 |
| Date | 23-10-1443 |



