

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

**Computing Department, Community College Dammam
University of Dammam**

**Course Specifications
(CS)**

Database Concepts

IS120

Database Concepts

Course Specifications

Institution: University of Dammam	Date of Report
College/Department: Dammam-Community College / Computer Science Department	

A. Course Identification and General Information

1. Course title and code: Database Concepts_(IS120)			
2. Credit hours: 3 (2 Theoretical + 2 Practical)			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Information systems and Information technology tracks			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: 1 st Level / Year 1			
6. Pre-requisites for this course (if any): None			
7. Co-requisites for this course (if any):			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="%70"/>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="%30"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			

B Objectives

<p>By the end of this course, the student should be able to:</p> <ol style="list-style-type: none"> 1. Describe and discuss the concepts of database design. 2. Design a conceptual data model and logical database model, convert the logical database designs to physical designs and develop the physical database. 3. Evaluate a set of query using relational algebra and calculus. 4. Evaluate a set of query using query language. 5. Discuss and explain database design for an ORDBMS.
<p>Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p>

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

This course aims to discuss the basic concepts and design of database. It introduces different data models, data storage and retrieval techniques and database design techniques. The course primarily focuses on relational data model and DBMS concepts. The course will be accompanied by a practical part (lab) in which the students will learn popular Database tools and how to use these tools to develop Database systems.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
1. Data model, levels of abstraction, data independence, and concurrency control.	1	2T + 2P
2. Focuses on how to design databases for given problems	1	2 T + 2P
3. How to use database effectively, these including Entity Relationship (ER) model, key and participation constraints, weak entities, class hierarchies, aggregation and conceptual DB design using the ER model.	2	4 T + 4P
4. Relational model: creating and modifying relation using query language, enforcing integrity constrains, ER to relational and view.	2	4 T + 4P
5. Structured Query language	2	4 T + 4P
6. Schema refinement and normal forms: Functional dependencies, reasoning about functional dependencies, normal forms, decompositions and normalization.	2	4 T + 4P
7. Relational Queries: Relation algebra and calculus and commercial query languages.	1	2 T + 2P
8. Object database systems: User defined abstract data type, structured types, objects; object identity; and reference type, inheritance, and database design for an ORDBMS.	2	4 T + 4P
9. Students will be trained on latest DB software tools such as: Oracle, Sybase, DB2, and Informix.	2	4 T + 4P

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30		30			60
Credit	30		15			45

3. Additional private study/learning hours expected for students per week.	4
--	---

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
--

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Identify and describe basic concepts of database systems	Lectures, Presentations, Class discussions, Independent Work	Major Exam
1.2	Describe database constrain and limitation		
2.0	Cognitive Skills		
2.1	Construct ER diagrams for real-world scenarios	Lectures, Presentations, Class discussions, Independent Work	- Machine problem, Major Exam, Assignment, project
2.2	Construct relational algebra and SQL queries		
3.0	Interpersonal Skills & Responsibility		
3.1	Develop appropriate data relative queries	Lectures, Presentations, Class discussions, Independent Work	Major Exam, project
3.2	Design efficient database using Normalization Techniques.		
4.0	Communication, Information Technology, Numerical		
4.1	Communicate and present results or information effectively.	Question and answer method, Lecturing	Student presentations, Major Exam, Project
4.2	Work as a team.		
5.0	Psychomotor		
5.1	N/A	N/A	N/A
5.2			

5. Course Learning Outcomes Mapping Matrix	
Identify on the table below the Course Outcomes and Relationship to PLOs	
Course Learning Outcomes	Program Learning Outcomes
1. Knowledge	
1.1	1.1
1.2	1.2
2. Cognitive skills	
2.1	2.3
2.2	2.1 , 2.2
3. Interpersonal Skills and responsibility	
3.1	3.1, 3.2
3.2	3.3
4. Communication IT and Numeral Skills	
4.1	4.2, 4.3
4.2	4.1
5. Psychomotor Skills	
5.1	N/A

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First quiz	3	%2.5
2	Fist midterm	6	%10
3	Second quiz	8	%2.5
4	Second midterm	10	%10
5	Project	12	%10
6	Lab	13	%20
7	Attendance/Participation	All weeks	%5
8	Final	17	%40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- Each group of students is assigned to a member of staff who will be available for help and academic guidance office hours at specific 2 hours on daily basis.

E. Learning Resources

1. List Required Textbooks

- Ramez Elmasri and Shamkant Navathe, "Fundamentals of Database Systems" 6th Edition, 2010.

<p>2. List Essential References Materials (Journals, Reports, etc.)</p> <ul style="list-style-type: none"> • Carlos Coronel, Steven Morris, and Peter Rob, "Database Systems: Design, Implementation, and Management", 9th Edition, 2009. • Thomas M. Connolly and Carolyn E. Begg, " Database Systems: A Practical Approach to Design, Implementation and Management", 5th Edition, 2009.
<p>3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)</p>
<p>4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)</p> <ul style="list-style-type: none"> • Blackboard and Social Media
<p>5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.</p> <ul style="list-style-type: none"> • CDs accompanied with the text book, power point lectures and essential references

F. Facilities Required

<p>Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)</p>
<p>1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p> <p>Classrooms:</p> <ul style="list-style-type: none"> • Furnished with a large central table or multiple small tables that can be grouped into one central table • Designed for up to 25 students • Size the room allowing 1sq meter per seat <p>Laboratories:</p> <p>25 PC's (one for each students)</p>
<p>2. Computing resources (AV, data show, Smart Board, software, etc.)</p> <ul style="list-style-type: none"> • Smart Board, projector, internet, and whiteboard.
<p>3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)</p> <ul style="list-style-type: none"> • No

G. Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:</p> <ul style="list-style-type: none"> • Student questionnaires to be assessed by independent body. • Assessment of course teaching strategies by independent body.
<p>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor:</p> <ul style="list-style-type: none"> • Student questionnaires to be assessed by department.
<p>3 Processes for Improvement of Teaching:</p> <ul style="list-style-type: none"> • Attending workshop, reading books, and the searching for e-resources. • Revision of course contents, course specifications, and strategies every 5 years.

- 4 Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
- Check marking by an independent member of staff of a sample of student work.
 - Periodic exchange and remarking of a sample of assignments with a member of staff in another institution

- 5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
- Reviewing student's feedback.
 - Update text books.
 - Consulting other top universities course specifications and contents.