هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Database Concepts and Design**
Course Code:	ITEC-211
Program:	**BS in** Information **Technology and Security**
Department:	**Information Technology & Security**
College:	**Computer Science & Information Technology**
Institution:	**Jazan University**
Version:	**4**
Last Revision Date:	**7 May 2024**

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A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☒ College	☐ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Level 5 year 2)					
4. Course general Description:					
This course aims to discuss the basic concepts and designs of the database. It covers topics such as database system architecture, data model, levels of abstraction, data independence, and concurrency control. It focuses on how to design databases for given problems, and how to use database effectively, including ER modelling, key and participation constraints, weak entities, class hierarchies, aggregation and conceptual DB designing the ER model. Relational model: creating and modifying relation using query language, enforcing integrity constraints, ER relational and view. Schema refinement and normal forms: Functional dependencies, reasoning about functional dependencies, normal forms, decompositions, and normalization. Relational Queries: Relation algebra operation and commercial query languages. Students will be trained on one of the software tools like Oracle, Sybase, MySQL, DB2 etc.					
5. Pre-requirements for this course (if any)**:NIL**					
6. Pre-requirements for this course (if any)**:NIL**					
7. Course Main Objective(s):					
• **Understand and discuss the concepts of database design** • **Design a conceptual data model and logical database model, convert the logical database designs to physical designs and develop the physical database** • **Evaluate a set of queries using relational algebra operations** • **Be able to execute a set of queries using query language**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60(L+T)	100%
2	E-learning		

No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial -**	
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	ABET Student Outcomes (SOs)
1.0	**Knowledge and understanding**				
1.1	Define the basic concepts and terminology of database systems.	K1 CLO-1	Visual & Verbal [Lectures / Presentations]	Theory Exams	SO-1
1.2	Demonstrate the understanding database design, architectures, models, constraints, environment, and DBMS languages.	K1 CLO-2	Visual & Verbal [Lectures / Presentations]	Theory Exams	SO-1
...					
2.0	**Skills**				
2.1	Analyse the given situation and apply advance database concepts like Normalization, Functional Dependency to represent database in variety of	S1 CLO-3	Visual & Verbal [Lectures / Presentations]	Theory Exam / Assignment / Mini Project	SO1

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods	ABET Student Outcomes (SOs)
	ways like ERD, Relational Model etc.				
2.2	Design and Implement database technically in variety of ways like DDL, DML, Relational Algebra etc.	S5 CLO-4	Visual & Verbal [Lectures / Presentations]	Theory Exams	SO2
2.3	Identify a mini-world problem and apply database models and concepts like E-R Diagram, Relational Algebra, Normalization, Functional Dependency etc. to propose various solutions.	S3 CLO-5	Visual & Verbal [Lectures / Presentations]	Lab Exam / Mini Project / Assignment	SO1, SO2
3.0	**Values, autonomy, and responsibility**				
3.1	Demonstrate the ability to function individually or in a group to design a universe of discourse database.	V1 CLO-6	Active Class / Lab participation, Individual and Group Activities	Lab Exam / Mini Project	SO5

C. Course Content

No	List of Topics	Contact Hours
1.	Chapter 1: Database and Database Users	4T+5P
2.	Chapter 2: Database System Concepts and Architecture	5T+5P
3.	Chapter 3: The Relational Data Model and Relational Database Constraints	5T+5P
4.	Chapter 4: Data Modeling Using the Entity-Relationship (ER) Model	5T+5P
5.	Chapter 5: Relational algebra	5T+5P
6.	Chapter 6: Functional Dependencies and Normalization for Relational Databases	6T+5P
Total		**30T + 30P**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1	**Assignment**	**4**	**10**
2	**Mid-exam**	**8**	**15**
3	**Mini-Project**	**7 / 8**	**15**

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
4.	Lab Assignment	Week 10	10
	Lab Exam	As-Scheduled	10
5.	Final Exam	As-Schedules	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	Elmasri, R., Navath, S., and Navath, B.,"Fundamentals of Database Systems" , Pearson New International Edition, 7th Edition, ISBN-10: 0133970779 | ISBN-13: 9780133970777, 2016
Supportive References	Carlos Coronel, Steven Morris, Peter Rob. "Database Systems: Design, Implementation, and Management". Eleventh Edition, Course Technology Cengage Learning, 2015.
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom / Lab
Technology equipment (projector, smart board, software)	Projector, Smart Board, Oracle (Online or Installed SW)
Other equipment (depending on the nature of the specialty)	Microphone, Speaker, Camera, Streaming

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	In-Direct
Effectiveness of Students assessment		
Quality of learning resources	Track Leaders	Direct
The extent to which CLOs have been achieved	HOD / QAU	Direct
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	