هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission
اعتماد
NCAAA
2024
TP-153

Course Specification
(Bachelor)

Course Title:	Advanced Database
Course Code:	343 CIS-3
Program:	Information Systems
Department:	Information Systems
College:	College of Computer Science and Information Systems
Institution:	Najran University
Version:	
Last Revision Date:	Dec.2nd, 2024

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: 3 (2,2,1)					
2. Course type					
A.	☐University	☒ College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Level 6/ 3rd Year)					
4. Course General Description:					

The course covers the topics including Storing data: disks and files which include the memory hierarchy, disk space management, buffer management, file and indexes, page formats and record formats; file organization and indexes which introduce cost modeling, comparison of three file organizations, overview of indexes and properties of indexes. Three-structured indexing, hash-based indexing and database design security; transaction management which introduce to transactions and schedules, concurrent execution of transaction, lock-based concurrency control and crash recovery. Crash recovery includes introduction to ARIES, recovery from a system crash and media recovery. It also covers advanced topics such as: Data Mining, Data Warehousing and XML. Students will be trained on some software tools such as: Oracle, Sybase, DB2, and Informix.

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

N/A

6. Co-requisites for this course (if any)**:**

N/A

7. Course Main Objective(s):

To introduce the Programming in large-scale relational database environment, design and implement applications. Another aspect has ability to apply database administrator, performance issues, Determine the benefits of indexing, integrity

constraints and triggers, Apply Database Security, backups issues to recovery, Finally Analyze the Categories of database failure.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	50	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	40
2.	**Laboratory/Studio**	25
3.	**Field**	10
4.	**Tutorial**	
5.	**Others (specify)**	
Total		75

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	**Identify the client/server architecture of the database and the architecture of the DBMS**	**K1, K2, K3**	**Student be able to understand architecture of the DBMS Class lectures and Labs**	**Tests, Quizzes, Assignments and Labs**

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.2	Explain the concepts of database files and indexing, and integrity constraints	K1, K2	Student should be able to understand concepts of database files, indexing, and integrity constraints Class lectures and Labs	Tests, Quizzes, Assignments and Labs
1.3	Demonstrate and understand of issues in Concurrency Control Techniques	K3	Student be able to understand concepts of data Concurrency Control Class lectures	Tests, Quizzes, and Assignments
2.0	**Skills**			
2.1	Implement database transactions	S2, S4	Student be able to Learn and apply database transactions Class lectures and Labs	Tests, Quizzes, Assignments and Labs
2.2	Perform database backup, recovery and Security	S1, S4	Student be able to learn and apply database backup and recovery Class lectures and Labs	Quizzes, Assignments and Labs
2.3	Discuss the basics of data warehousing, data mining and XML	S1, S4	Student be able to learn and apply Database Security Class lectures and Labs	Tests, Quizzes, and Assignments
3.0	**Values, autonomy, and responsibility**			

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
3.1	Solve effectively in teams and practice communication skills in writing and presenting the course project.	C1, C2	Discussion Class lectures and labs	Oral Presentation Weekly Task Final Report and Documentation Discussion
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Database Client-Server Architecture	10
2.	Database Transactions/ Conditional Statements, Iterative Control, Trigger , Procedures , Function, Forms and reports	10
3.	Managing Database instance , File Storage Structures, DB creation and indexing	10
4.	Concurrency Control Techniques	7
5.	Database Recovery Techniques	8
6.	Database Security	7
7.	Data Mining Concepts	5
8.	Overview of Data warehousing and OLAP	7
9.	XML: Extensible Markup Language	7
10.	Review	4
Total		75

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Lab activities	1-to-15	10
2.	Assignment 1	3	5
3.	Quiz 1	5	5
4.	Midterm Exam	8	20
5.	Assignment 2	11	5

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
6.	Quiz 2	13	5
7.	Final Lab	16	10
8.	Final Test	17	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, Ramez and Navathe, Shamkant. Fundamentals of Database Systems. Boston: 7th Edition, 2016
Supportive References	• Benjamin Rosenzwing, Elena Silvestrova, Oracle PL/SQL by Example, Printice Hall, Latest Edition • John Adoloh Palinski, Oracle SQL and PL/SQL Handbook. Addison Wesley, Latest Edition.
Electronic Materials	www.oracle.com
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Class room with 60 chair, white board, podium, wireless projectors, Wi-Fi with good speed
Technology equipment (projector, smart board, software)	• Lecture room should contain a PC attached to the data show device with latest MS Office and Adobe Acrobat Reader packages being installed. • LAB room should contain a PC attached to the data show device with latest MS Office and Pl.SQL-plus being installed. data show multimedia system, PCs Headset and Microphone system.
Other equipment (depending on the nature of the specialty)	A File cabinet to keep Class Stuff, Markers, papers and students Files, and a printer to print program screenshots.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct
Effectiveness of Students assessment	Instructor	Direct
Quality of learning resources	Instructor	Direct
The extent to which CLOs have been achieved	Program leaders	Direct
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	17th Department Council
REFERENCE NO.	14460810-0976-00017
DATE	10/02/2025