



Course Specification

— (Bachelor)

Course Title: Database Management Systems

Course Code: IS233

Program: Information Technology

Department: Information Technology

College: College of Computer and Information Sciences

Institution: Majmaah University

Version: TP-153

Last Revision Date: Fall 2023- 16-9-2023



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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-6)

4. Course general Description:

This course is introducing the following topics
 DBMS architecture and administration; centralized and client-server approaches, system catalog, and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques: serializability, deadlock, locking schemes, time-stamp ordering, multi-version, and optimistic techniques, DB security, distributed databases, distributed DBMS, data fragmentation and replication, and distributed transactions management

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

IS 213

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

NA

7. Course Main Objective(s):

After successful completion of this course, student will be able to-

1. Recognize the main functions of database management.
2. Be able to analyse an algorithm for query processing and to optimizing it.
3. Learn transaction management, concurrency and recovery of a database.
4. Recognize the importance of database security and authentication of users.
5. Understand the need for distributed systems and how databases are distributed.

2. Teaching mode (mark all that apply)





No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid <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	Recognize the main functions of database management.	K1	lecture, lab	Class Test, Mid Exam, Final Exam
1.2	Learn transaction management, concurrency and recovery of a database.	K1	lecture, lab	Class Test, Mid Exam, Final Exam
...				
2.0	Skills			
2.1	Recognize the importance of database security and authentication of users.	S4	lecture, lab	Class Test, Mid Exam, Final Exam, Assignments, Mini Project



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Be able to analyse an algorithm for query processing and to optimizing it.	S4	lecture, lab	Class Test, Mid Exam, Final Exam, Assignments, Mini Project
2.3	Understand the need for distributed systems and how databases are distributed.	S2	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.	DBMS architecture and administration; centralized and client-server approaches	4
2.	System catalog, and data dictionary	4
3.	Transaction management; concepts, characteristics, and processing	4
4.	Recovery techniques	4
5.	Concurrency control techniques	4
6.	Serializability & Deadlock	8
7.	Locking schemes	4
8.	Time-stamp ordering, multi-version, and optimistic techniques	4
9.	DB security	8
10.	Distributed databases & Distributed DBMS	4
11.	Data fragmentation and replication	4
12.	Distributed transactions management	8
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	Week 4, Week 12	20%



No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
2.	Assignments	Week 7, Week 13	10%
3.	Mid Term Exam	Week 8	20%
4.	Tutorial	Every Week	10%
5.	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	<ul style="list-style-type: none"> 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	YouTube for extra tutorial SQL Lab, Cloud oracle apps, research papers

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



Assessment Areas/Issues	Assessor	Assessment Methods
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	

