جامعة المجمعة
Majmaah University

Course Specifications

Institution:	College of Science at Az Zulfi
Academic Department :	Computer Science and Information
Programme :	Computer Science and Information
Course :	Advanced Database (CSI 324)
Course Coordinator :	Dr. Ahmed Mostafa Shehata
Programme Coordinator :	Dr. Yossry Azzam
Course Specification Approved Date :	22/ 12 / 1435 H

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1 - Course title : **Advanced Database** Course Code: **CSI 324**	
2. Credit hours : **3 credit (1 lecture + 4 Laboratory)**	
3 - Program(s) in which the course is offered:	**Computer Science and Information Program**
4 – Course Language : English	
5 - Name of faculty member responsible for the course: **Dr.**	**Ahmed Mostafa Shehata**
6 - Level/year at which this course is offered :	**6th level**
7 - Pre-requisites for this course (if any) : • **Database (CSI 314))**	
8 - Co-requisites for this course (if any) : • **N/A**	
9 - Location if not on main campus : **College of Science at Az Zulfi**	

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	√	What percentage?	**80 %**
B - Blended (traditional and online)	√	What percentage?	**5 %**
D - e-learning	√	What percentage?	**5 %**
E - Correspondence		What percentage?	**%**
F - Other	√	What percentage?	**10 %**

Comments :

One-tenth of the course instruction is dedicated to students' self-learning where they are asked to read the course book, solve problems in their homes, and do experimental work using some dedicated SW programs that simulate the real HW kits.

B Objectives

What is the main purpose for this course?

This course introduces the concepts and principles of database management systems (DBMS). It focuses on terminology and fundamental concepts of relational databases and database management systems. Students will learn SQL and PL/SQL including, triggers and transaction processing. They will understand performance issues and optimization strategies through query rewriting, secondary storage characteristics, and access strategies.

- Major topics include:
- Transaction management,
- Recovery, concurrency control.
- PL/SQL Programming,

- Parallel Databases, Distributed Databases
- File organization and access,
- Performance analysis and storage management.
- Database system architecture, Query processing and optimization, Reliability, protection, and integrity.

Briefly describe any plans for developing and improving the course that are being implemented :

1. Group discussion
2. Explore Oracle 10g programming.
3. Motivate students to design and develop databases using Oracle 10g programming.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Concepts and principles of database management systems (DBMS)	1	5
Fundamental concepts of relational databases and database management systems	1	5
Applying and using SQL, PL/SQL Programming based on: • Data Definition Language (DDL). • Data Manipulation Language (DML). • Data Control Language (DCL).	4	20
Transaction Management System	2	10
Introduction to Advanced Query Processing and Query Optimization Techniques	2	10
Recovery and Concurrency control.	1	5
Introduction to Protocols for Concurrency Control in Databases	1	5
Parallel Databases and Distributed Databases	1	5
Database system architecture, Query processing and optimization, Reliability, protection, and integrity.	1	5

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	15		60	-	-	75
Credit	15		30	-	-	45

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

6 **Hours**

The private self-study of my students is crucial for this course. It includes:

- reading carefully the topics in the textbook or reference book,
- solving the exercises that are assigned in each chapter,
- browsing the websites that concerned with the course,
- discussing the course topics with the instructor in his office hours,
- watching the video lectures of other instructors who presented related topics worldwide.

The total workload of the student in this course is then: 75 + 6 * 15 = 165 work hours.

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	Understand advanced database concepts.	Lectures. Lab demonstrations. Case studies. Individual presentations.	Written Exam. Home works. Assignments Lab assignments. Class Activities. Quizzes.
1.2	Define the concept of transactions and describe fundamental transaction processing, concurrency and recovery control issues associated with database management systems.		
1.3	Design and implement complex databases schemas using ER diagrams, normalization, integrity constraints, and advanced database system features such as stored procedures and triggers.		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
2.0	**Cognitive Skills**		
2.1	Use PL/SQL programming with DBMS	Lectures. Lab demonstrations. Case studies. Individual presentations. Brainstorming.	Written Exam. Home works. Assignments. Lab assignments. Class Activities. Quizzes.
2.2	Students will be able to reason about and apply SQL queries.		
2.3	Retrieve information from a database using Structured Query Language (SQL).		
3.0	Understand the basic concept of transactions, the importance of transactions and how transactions are managed in a database.		
3.1	Develop database applications using database client APIs such as embedded SQL, ODBC, and JDBC.	Small group discussions. Whole group discussions. Brainstorming. Presentations.	Written Exam Homework assignments Lab assignments. Class Activities. Quizzes.
3.2	Describe basic concepts regarding database security and authorization.		
4.0	**Communication, Information Technology, Numerical**		
4.1	Gain experience with the use of a commercial relational database product.	Small group discussions. Whole group discussions. Brainstorming. Presentations.	Written Exam. Home works. Assignments. Lab assignments. Class Activities. Quizzes.
4.2			
4.3			
5.0	**Psychomotor**		
5.1	**N/A**	.....	.....

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	First written mid-term exam	6	15%
2	Second written mid-term exam	12	15%
3	Presentation, class activities, and group discussion	Every week	10 %
4	Homework assignments	After Every chapter	10 %
5	Practical exam	15	10%
6	Final written exam	16	40%
7	Total		100%

D. Student Academic Counseling and Support

Office hours: Sun – Wed: 12 PM - 2:00 PM
Office call: Sun – Wed: 12 PM - 2:00 PM
Email: dr.ashehata@ymail.com

E. Learning Resources

1. List Required Textbooks :
Database System Concepts (6th Edition) by Silberschatz, Korth and Sudarshan, McGraw Hill, 2010. ISBN-13: 978-0073523323

2. List Essential References Materials :
Oracle Database 11g & MySQL 5.6 Developer Handbook, by Michael McLaughlin, McGraw Hill, 2012. ISBN: 978-0-07-176885-6

3. List Recommended Textbooks and Reference Material :
Silberschatz, Korth, and Sudarshan, Database System Concepts, 5th edition , 2005, McGraw-Hill.

4. List Electronic Materials :
http://databases.about.com/
http://searchdatabase.techtarget.com/
http://database.ittoolbox.com/

http://www.athree.com/db_basics/index.html
5. Other learning material : Video and presentation are available with me

F. Facilities Required

1. Accommodation Classrooms for lectures which are featured to traditional education, e-learning, and equipped with a computer, display device, data show screen, ordinary blackboard, smart board, integrated sound system, proper lighting system, and proper conditioning system.
2. Computing resources • Smart Board
3. Other resources • N/A

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching: • Analysis of students' results. • Observation during work. • Students' evaluations. • Colleagues' evaluations. • Evaluation questionnaire filled by the students. • Interview a sample of students enrolled in the course to take their opinions.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor : • Self-assessment. • External evaluation. • Periodic review of course (the Commission of study plans).
3 Processes for Improvement of Teaching : • Taking into account the recommendations yielded from the internal review of the course. • Guidelines about course teaching provided by the by study plans commission. • Department Guidelines about faculty member performance on the basis of direct observation. • Training and development. Workshops to improve the educational process.
4. Processes for Verifying Standards of Student Achievement • Comparison Graphs to indicate student achievements in comparison to other departments.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Comparison of the course to its counterparts offered in similar departments.
- Periodic revision of course description by faculty member.
- Periodic revision of course description by the study plans and schedules Commission.
- Update learning resources related to the course to ensure that the course is kept up with developments in the field.
- Make use of statistical results of course evaluation made by students to improve and develop the course.
- Giving the opportunity for students to express their opinions about what is taught and receive suggestions and study their effectiveness.

Course Specification Approved
Department Official Meeting No (…..) Date … / …. / ….. *H*

Course's Coordinator		**Department Head**	
Name :	Dr. Ahmed Shehata	***Name :***	Dr. Yosry Azzam
Signature :	*Ahmed Shehata*	***Signature :***	Yosry Azzam
Date :	…./ … / …… *H*	***Date :***	…./ … / …… *H*