FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Computers and Information Technology

Database System-2

Information :

Course Code :	IS312	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Information Systems

Instructor Information :

Title	Name	Office hours
Lecturer	Mohamed Attia Mohamed	3
Assistant Lecturer	Mohamed Mahmoud Hasan Hamada	

Area Of Study :

Develop database systems in a contemporary business context and demonstrate the new trends including data warehousing and OLAP.
Define the operational, strategic and practical aspects and issues considering different approaches for implementing object oriented database management systems.
Identify the management and ethical issues relating to database systems.
Use effectively communication skills.

Description :

The main objective of this course is to provide students with an in-depth understanding of the design and implementation of database systems and the administration features of any DBMS. Topics Include: Review of Relational model, E-R Diagramming, Normalization, SQL, Review of Relational Algebra, Query Processing and Optimization, Transaction Processing, Concurrency Control and Recovery, Database Security and Authorization, Database Architectures, Distributed Databases: Architecture, Distributed transaction processing, Object Oriented Databases, Data Warehousing: Heterogeneous component systems, data scrubbing, DW Design. On-Line Analytical Processing (OLAP). Upon successful completion of this course, students will have advanced skills to effectively develop, implement and manage medium to large-scale database management systems.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Describe Object Oriented Analysis and Design (OOAD).
2 -	Identify new trends in IS.
3 -	Explain information communication and security techniques.
4 -	Illustrate management process for software projects and productions.
5 -	Identify the principles of economics and management.
b.Intellectual Skills: :	
1 -	Demonstrate the role of database systems in the society
2 -	Compare and differentiate between analysis methods and techniques used in database systems problems solutions.
3 -	Select analytical skills for database systems.
4 -	Evaluate and verify different solutions for database systems using a well-defined criterion.

c.Professional and Practical Skills: :	
1 -	Adapt different skills for information management, organization and retrieval.
2 -	Execute different database management systems techniques.
3 -	Execute existing database systems
d.General and Transferable Skills: :	
1 -	Work in a team to develop the requirement documentation.
2 -	Apply communication skills in presentations and report writing using various methods and tools.
3 -	Appreciate continuous professional development and lifelong learning.

ABET Course outcomes :	
1 -	Demonstrate adequate understanding of the fundamental components and functionalities of Relational Database Management Systems (RDBMS)
2 -	Demonstrate adequate understanding of distributed databases, data security issues, and emerging database. technologies and applications
3 -	Analyze and compare Object-oriented, relational-object, and graph data models
4 -	Identify the management and ethical issues related to database systems
5 -	Demonstrate adequate understanding of database system emerging technologies such as XML, NoSQL, and Big Data databases
6 -	Design advanced relational database models based on enhanced normalization concepts

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Revision on Database Modeling and Design in ER and Relational Data Models	4	2	2
Advanced SQL Query Manipulation, data warehousing and OLAP	4	2	2
Relational Query Optimization	4	2	2
Data Normalization	4	2	2
Distributed Databases, data warehousing and OLAP	4	2	2
Transaction Processing	4	2	2
Concurrency & Backup Controls	4	2	2
Object-Relational DBMS (SQL3)	4	2	2
Mid-Term Exam	2		
Web Database Technologies (MySQL)	4	2	2
XML	4	2	2
Emerging Database Applications	4	2	2
Project presentation	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :
Interactive Lectures including discussion
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)

Brain Storming and Problem Solving

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00	14	
Midterm Exam (s)	20.00	9	
Quizzes	10.00	5	
Research and Presentations	10.00	10	
Team Work Projects	20.00	11	

Course Notes :

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle)

Recommended books :

Connolly & Begg ñDatabase Systems, A practical approach to design, implementation, and managementò, 6th edition, 2015, Pearson

Web Sites :

Åwww.ekb.eg
Åhttps://academic.oup.com/database
Åhttp://www.cefls.org/info.htm
Åhttps://www.mysql.com/
Åhttps://www.sqlite.org/