

Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information

Course name	Data Bases (1)
Course number	ITCS2305
Faculty	
Department	
Course type	Major Needs
Course level	2
Credit hours (theoretical)	2
Credit hours (practical)	1
Course Prerequisites	

Course Objectives

- 1 - provide fundamental understanding of database design principles
- 2 - provide fundamental understanding of database implementation and management in a single-site environment

Intended Learning Outcomes

Knowledge and Understanding	<ul style="list-style-type: none"> * a1 Identify and perform the steps involved in the design of a database * a2 A good understanding of the fundamental concept and issues of database Systems
Intellectual Skills	<ul style="list-style-type: none"> * b1 Implement and critique the design in a relational database management system
Professional Skills	<ul style="list-style-type: none"> * c1 Write SQL queries to retrieve information from a database proficiently * c2 How to think in solving a wide range of problems related to the analysis, design and construction of database systems
General Skill	<ul style="list-style-type: none"> * d1 The ability to apply a wide range of principles and tools available to Querying Databases as SQL and Oracle

Course Contents

- 1 - Introduction Database history. File-based system vs database. Database components. User types. Architecture. Data independence. Data models
- 2 - Data model and query Relational model: schema, primary key, foreign key, algebra, database operators. Data definition. SQL
- 3 - Database design Entity Relationship model. Data redundancy. Update anomalies. Functional dependency. Normalization: BCNF, 3NF
- 4 - Database management Consistency: integrity, trigger, user constraint, view. Data modification language. Security: Access permission, database users, permission granting

Teaching and Learning Methods

- 1 - Lectures
- 2 - Tutorial Exercises
- 3 - Case Study

Students Assessment

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
Mid-Term Exam I	6th week	20
Lab	During the 16 weeks	20
Class Work	During the 16 weeks	10
Final Exam	16th week	50

Books and References

Essential books	Thomas Connolly and Carolyn Begg, Database Systems, 4th Ed. , Addison Wesley, 2005
Recommended books	Silberschatz A., Korth H. and Sudarshan S. Database System Concepts. 6th Ed. McGraw-Hill Companies Inc. (2010)

Knowledge and Skills Matrix

Main Course Contents	Study Week	Knowledge and Understanding	Intellectual Skills	Professional Skills	General Skill
Introduction Database history. File-based system vs database. Database components. User types. Architecture. Data independence. Data models	1-3	a1	b1	c1	d1
Data model and query Relational model: schema, primary key, foreign key, algebra, database operators. Data definition. SQL	4-8	a1-a2	b1	c1-c2	d1
Database design Entity Relationship model. Data redundancy. Update anomalies. Functional dependency. Normalization: BCNF, 3NF	9-11	a1-a2	b1	c1-c2	d1
Database management Consistency: integrity, trigger, user constraint, view. Data modification language. Security: Access permission, database users, permission granting	12-15	a1	b1		d1