1.	**Course Title**	**Database**		
2.	**Course Code**	**CCPS1073**		
3.	**Status**	Major		
4.	**Credit Hour**	3 (2+1) 2 for lecture (2 hours per week x 14 weeks) 1 for lab (2 hours per week x 14 weeks)		
5.	**Semester/Year**	2/3		
6.	**Prerequisites**	Nill		
7.	**Teaching method:**	Lecture and lab		
8.	**Evaluation**	**Assessment and Marking Percentage:** Quizzes 10 % Assignments 10 % Interactions through discussion board 10 % Mid-Semester Exam 20 % Final Examination 50 %		
9.	**Lecturer**			
10.	**Objective of the Subject**	This subject is designed to enable students to understand the: • Concepts of database management systems • query optimization and its impact on programming • database management systems integrity, recovery, concurrency, security and transaction management mechanisms • Capabilities of a DBMS		
11.	**Learning Outcomes**	Upon completion of this subject, students should be able to: • explain the basic concept of database systems development apply the normalization of database tables • construct the database design • create the database and tables structures • develop the transactional management and concurrency control • Able to apply DBMS concepts using standard DBMS software.		
12.	**Synopsis**	This course covers the aspect of the theory, design and management of databases. Emphasis will be given on solving problems encountered when designing a database and the use of database system. The main topics of this course include the DBMS, E-R model, SQL, server, ASP and Microsoft Net and etc. Students are expected to carry out a project on database. This course also covers the usage of a generic DBMS system that are platform independent (in terms of O/Ses), very low TOC, esy embedded deployment, easily integrated with leading development systems, support for JDBC, advanced security systems, web and client based applications development.		
13.	**Topics**	Details	Lecture (Hrs)	Lab (Hrs)
	Topic 1	Introduction to Database Management • Database Characteristics • Features of Database Management Systems	2	2
	Topic 2	Introduction to Database Management • Evolution of Database Technology • Architectures of Database Management Systems	2	2
	Topic 3	The Relational Database Model • A Logical View of Data • Keys • Integrity Rules	2	2
	Topic 4	• Relational Database Operators • The Data Dictionary and System Catalog Relationships Within The Relational Database	2	2
	Topic 5	Entity Relationship (E-R) Modeling • Basic Modeling Concepts	2	2

		• Data Model (The Conceptual Model, The Internal Model, The External Model And The Physical Model • The Entity Relationship Model (E-R) Model. (Entities, Attributes, Relationships, Connectivity And Cardinality, Relationship Strength, Composite Entities, Entity Supertypes and Subtypes)		
	Topic 6	Normalization of Database Tables • The Need For Normalization • Conversion To First Normal Form • Conversion To Second Normal Form	2	2
	Topic 7	• Conversion To Third Normal Form • The Boyce-Codd Normal Form(BCNF) • Higher-Level Normal Form	2	2
	Topic 8	Database Design • Changing Data Into Information • The Information System	2	2
	Topic 9	• The Systems Development Life Cycle (Planning, Analysis, Detailed Systems Design, Implementation, Maintenance). • The Database Life Cycle (The Database Initial Study, Database Design, Implementation and Loading, Testing And Evaluation, Operation, Maintenance And Evolution	2	2
	Topic 10	Structured Query Language (SQL) • Creating the database and tables structures • Data Entry	2	2
	Topic 11	• Saving, Listing, Restoring And Deleting Tables contents • Advanced Data Management commands • More complex queries and SQL Functions • Procedural SQL	2	2
	Topic 12	Transaction Management and Concurrency Control • What is a Transaction • Concurrency Control • Concurrency Control with Locking Methods	2	2
	Topic 13	Transaction Management and Concurrency Control • Concurrency Control with Time Stamping Methods • Concurrency Control with Optimistic Methods	2	2
	Topic 14	• Database Recovery Management	2	2
		Total contact hours	28	28
		Equivalent lecture hours	28	14
		Total lecture hours	42	
		Credit hours	3	
14.	**Main reference:**	Kroenke, David M . ***Database Concepts***. Prentice Hall. 3 edition (February 3, 2007) **...**		
15	**Additional References:** **Other Materials:**	1. Thomas, M.C, Carolyn E.B, Anne D.S., (2002), *Database Systems:* ***A Practical Approach to Design, Implementation and Management***, 3rd Edition, New York: Addison Wesley. 2. Lewis, Philip M (2001). ***Database and Transaction Processing – an Application - Oriented***. Addison Wesley. 3. Carter, John (2000). ***Database design and programming with Access, SQL and Visual Basic***. McGraw Hill. 4. Rob, Peter Coronel, (2000), ***Database system: design, implementation and management***. Computer Press. 5. ___,_____ , (1996), ***Managing SQLBase Databases***, Gupta Technologies LLC All other materials will be available to students online.		