

<b>G U I and Database management</b>				
CLASS S.E ( INFORMATION TECHNOLOGY)				
SEMESTER III				
HOURS PER WEEK	LECTURES	:	04	
	TUTORIALS	:	--	
	PRACTICALS	:	02	
			<b>HOURS</b>	<b>MARKS</b>
EVALUATION SYSTEM:	THEORY		3	100
	PRACTICAL		3	50
	ORAL		-	25
	TERM WORK		-	25

## 1. Data base concepts and Systems

Introduction- Purpose of Database Systems, Views of data, Data Models, Database language, Transaction Management, Storage Management, Database Administrator, Database Users, Overall System Structure, Different types of Database Systems.

## 2. E-R Model

Basic Concepts, Design Issues, Mapping Constraints, Keys, E-R Diagram, Weak Entity set, Extended E-R features, Design Of an E-R Database Schema, Reduction of an E-R schema to Tables

## 3. Relational Model

Structure of Relational Database, The Relational Algebra, Views SQL- Background, Basic Structure, SET operations, Aggregate functions, Null Values, Nested Sub queries, Derived Relations, Views, Modification of Database, Joined Relations, DDL, Other SQL features.

## 4. Transaction

Transaction Concepts, State, Implementations of Atomicity and durability, Concurrent Executions, Serializability, Recoverability, Transaction Definition in SQL.

**5. Concurrency Control** Lock based protocol, Timestamp based protocol, Validation based protocol, Deadlock Handling, Insert and Delete operations, Concurrency in index structure.

## **6. Recovery system**

Failure classification, Recovery and Atomicity, Log based recovery, Shadow paging.

## **7. Graphical User Interface**

Murphy 's Law of G U I Design, Features of G U I, Icons and graphics, Identifying visual cues, clear communication, color selection, GUI standard, planning GUI Design Work.

## **8. Visual programming**

### **Sharing Data and Code**

Working with Projects, Introduction to Basic language, Using inbuilt controls and ActiveX controls, creating and using classes, Introduction to Collections, Using and creating ActiveX Components, dynamic data exchange, object linking and embedding

### **Creating visual software entities**

Working with text, graphics, working with files, file management, serial communication, multimedia control interfaces.

### **Programming for the Internet**

Using ActiveX controls on the web-the internet transfer control for HTTP, FTP

### **Database programming**

Data base basics, Visual Basic's database tools, Database designing and programming, DAO, RDO, ODBC,ADO, OLE DB, Relational databases, the Data Object Models, form and fields validation, Client Server Programming, COM-DCOM.

### **Text Book**

1. An Introduction to Database System, C.J. Date Pearson Education
2. Database Systems and Concepts, Henry F. Korth, Sliberschatz, Sudarshan, McGraw Hill

3. GUI Design for dummies, IDG books.
4. Visual Basic 2005, How to program (3<sup>rd</sup> Edition) Deitel & Deitel, Pearson Education
5. Microsoft SQL Server 2000 Bible, Wiley
6. BALTER, MS SQL SERVER 2005 EXPRESS IN 24 Hours, Pearson Education

## **Reference**

1. Beginning S Q L Server 2000 for Visual Basic Developers Willis thearon Shroff publishers & distributors
2. Fundamentals of Database Systems, Elmasri and Navathe Pearson Education
3. Database Management Systems Majumdar/ A K Bhattacharyya, Tata Mc Graw Hill

## **Term Work:**

**Term work shall consist of one mini project using Microsoft Visual Basic as Front End and Microsoft SQL Server as Backend. For eg.**

1. Library Management System
2. Income Tax Calculation System
3. Payroll System
4. Merit List Management System
5. Inventory Management System

### **The software shall have following attributes**

- a. Multiple forms and MDI form
- b. Menus, pull down menu and pop up menu
- c. Database connectivity using command objects and connection objects
- d. One list box populated by program code

Distribution of marks for term work shall be as follows:

- |  |          |
|--|----------|
| 1. Attendance (Theory and Practical)         | 05 Marks |
| 2. Laboratory work (Experiments and Journal) | 10 Marks |
| 3. Test (at least one)                       | 10 Marks |

The final certification and acceptance of TW ensures the satisfactory performance of laboratory Work and Minimum Passing in the term work.

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