JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2018 BATCH AND THEREAFTER

Programme: B.Sc.   **Semester: IV**

COMPUTER SCIENCE - IV

VISUAL PROGRAMMING and DATA BASE MANAGEMENT SYSTEMS

Course Code: 18IVCS4   **No. of Hours: 60**

COURSE OBJECTIVES:

- The aim of this course is to use a modern IDE to visually and programmatically create programs with GUI's.
- In this course students will learn to design and implement applications using an object-oriented methodology
- Students will be able to understand and use the event-driven model and its interaction with the modern multitasking operating systems.
- To introduce the basic technical, managerial and methodological organization of data in the database.
- Explore the idea of relational database and learn how to design relational database, interact with database efficiently and write queries and create database objects.

LEARNING OUTCOMES:

- The students will be able to understand and design a relational database, perform normalization and draw ER diagrams, write relational algebra and SQL queries.
- To develop interactive windows applications based on an event driven model.
- To create windows forms, data access with ADO.NET, and generate crystal Reports.

UNIT I   **(17 HRS)**

Introduction to visual programming: - Concept of event driven programming – Introduction to VB .Net Environment.

The .NET Framework : Common language runtime. The Visual Basic Integrated Development Environment. Forms- properties, events. The Visual Basic Language- console application and windows application, Data types, Declaring Variables, scope of variables, operators and statements.

Control structures: Making Decisions with If...Else Statements, Using Select Case, Making Selections with Switch and Choose, Loop statements – Do Loop, for, while- The With Statement.

Other visual basic programming concepts: Handling Dates and Times- Converting between Data Types- Arrays – declaration and manipulation –Sub procedures and functions.

UNIT II   (13 HRS)

Windows Applications: Forms- Adding Controls to Forms, Handling Events, Message Box, Input box, working with Multiple Forms, Setting the Startup Form, SDI &MDI Forms, Handling Mouse & Keyboard Events, Common controls (Text Boxes, Rich Text Boxes, labels, buttons, checkboxes, picture Boxes, Scroll bars, tool tips)-properties and methods.

Data Access with ADO.NET: Accessing Data with the Server Explorer- Accessing Data with data adaptors and Datasets- Creating a New Data Connection- Creating and populating Dataset- Displaying Data in a Data Grid- Selecting a Data Provider- Data access using data adapter controls –Binding data to controls.

UNIT III   (10 HRS)

Basic Concepts: Data, Database, DBMS, Advantages, Database users, Database Languages, Characteristics of Database, Role of DBA, Data Independence – Physical & Logical Independence.

Data Models: E-R Model, Relational Model, Network Model, Hierarchical Model.

UNIT IV   (10 HRS)

RDBMS: Relational database concepts – attribute, tuple, types of attributes – single, multi values, stored, derived. Keys – Primary, Index, Candidate, alternate, foreign, Relationships. Relational Algebra Operations: UNION, INTERSECTION, DIFFERENCE, CARTESIAN, PRODUCT, SELECTION, PROJECTION, JOIN, DIVISION. Normalization: Properties- 1st, 2nd, 3rd normal forms and BCNF.

UNIT V   (10 HRS)

SQL: DDL Commands: Create Table/Views/Index, Drop, Alter. DML Commands: Select, Insert, Delete, Update Commands. DCL Commands: Grant, Revoke. TCL Commands: Commit. SQL – query, sub-query, nested query, joins.

REFERENCE

1. Bill Evjen, Jason Beres, Et. Al Visual Basic .NET Programming Bible WILEY Dreamtech, 2004

2. Steven HolznerVisual Basic .NET Programming Black Book, Dreamtech, 2004

3. Elmasri&Navathe. Fundamentals of Data base Systems .Addison-Wesley.SixthEdition

4. Korth&Silberschtz. Data base concepts. McGraw-Hill. 4th Edition

COMPUTER SCIENCE IV

DBMS MINI PROJECT

No. of Hours: 45

The mini project is to introduce the students to the methodology for solving a problem and preparing a report using the steps of software engineering. Student should take a separate mini project and submit the dissertation.

Creation of a Database and performing the operations given below using a Menu Driven Program to perform

a) Insertion   b) Deletion   c) Modification   d) Generating a simple Report for the following:

- Payroll system
- Mark Sheet Processing
- Saving Bank Account for Banking
- Inventory system
- Invoice System
- Library Information System
- Income Tax Processing system
- Student Information system
- Electricity Bill Preparation system
- Telephone Directory Maintenance