# MANONMANIAM SUNDARANAR UNIVERSITYTIRUNELVELI

## UG COURSES – AFFILIATED COLLEGES

### B.Sc. Computer and Information Technology
**REGULATION 2020-21**

**SEMSTER III**

| SL. | COMPONENTS | HOURS | CREDITS |
|---|---|---|---|
| | PART III CORE SUBJECTS | | |
| 1. | Computer Oriented Numerical Methods | 4 | 4 |
| 2. | Object Oriented Programmingwith C++ | 4 | 4 |
| 3. | Object Oriented Programmingwith C++ - LAB | 6 | 3 |
| | ALLIED SUBJECTS - 1 | | |
| 4. | Data Structure | 4 | 4 |
| 5. | Data Structure – LAB | 4 | 2 |
| 6. | Skill Based Core Subject – I DTP | 5(2T+3P) | 4 |
| 7. | Non – Major Elective – I | 2 | 2 |
| 8. | Common Yoga | -- | 2 |
| | TOTAL (5T + 3P = 8 COURSE) | 30* | 25 |

* 1 Hour is allocated for Library/ Mentoring / Association / Club activities

**SEMSTER IV**

| SL. | COMPONENTS | HOURS | CREDITS |
|---|---|---|---|
| | PART III CORE SUBJECTS | | |
| 1. | Java Programming | 4 | 4 |
| 2. | Java ProgrammingLab | 6 | 3 |
| 3. | Operating System | 4 | 4 |
| | ALLIED SUBJECTS - 1 | | |
| 4. | Relational Data Base Management System | 4 | 4 |
| 5. | ORACLE - LAB | 4 | 2 |
| 6. | Skill Based Core Subject – II (Visual Programming) | 5(2T+3P) | 4 |
| 7. | Non – Major Elective – II | 2 | 2 |
| 8. | Computers for Digital Era | -- | 2 |
| 9. | Extension Activity | -- | 1 |
| | TOTAL (5T + 3P = 8 COURSE) | 30* | 26 |

* 1 Hour is allocated for Library/ Mentoring / Association / Club activities

# ALLIED THEORY IV

## Computer Oriented Numerical Methods

### Unit I: CURVE FITTING

Introduction, Method of Least squares, Curve Fitting, Fitting a Straight Line

### Unit II: SOLUTION OF ALGEBRAIC AND TRANSCEDENTAL EQUATIONS

Bisection method, Regula Falsi method, Newton Raphson Method

### Unit III: SOLUTION OF SIMULATANEOUS LINEAR EQUATIONS:

Solution of Simultaneous Linear Equations: Gauss Elimination method, Gauss-Jordan method, Gauss Seidel Method, Jacobi's method

### Unit IV: NUMERICAL DIFFERENTIATION & INTEGRATION:

Differentiation: Using Newton's Forward Difference, Newton's Backward Difference, Newton's Divided Difference (First Order Differentiation only) Integration: Using Trapezoidal rule, Simpson's 1/3 & Simpson's 3/8 rules

### Unit V: Solution of Ordinary Differential Equations:

Runge-Kutta 2nd Order and 4th Order methods, Predictor-Corrector Methods: Milne and Adam's methods

### Programs:

1. Write a C program to fit a straight line by method of least squares
2. Write a C program to implement bisection method
3. Write a C program to implement Newton Raphson method
4. Write a C program to solve simultaneous linear equations using Gauss Elimination method
5. Write a C program to solve simultaneous linear equations using Gauss Jacobi method
6. Write a C program to implement numerical integration using Simpson's one third rule
7. Write a C program to implement numerical integration using trapezoidal rule
8. Write a C program to generate newton's Forward difference table
9. Write a C program to implement numerical integration using trapezoidal rule
10. Write a C program to implement Milne's predictor corrector method

### Text Book(s):

Dr. M.K. Venkataraman, Numerical Methods in Science and Engineering, National Publishing Co., 2005

### Reference Book(s):

1. S. S. Sastry, Introductory Methods of Numerical Analysis, 4th edition, 2005.
2. E. Balagurusamy, Computer Oriented Statistical and Numerical Methods -Tata McGraw Hill., 2000
3. M.K.Jain, SRK lyengar and R.L.Jain, Numerical Methods for Scientific and Engineering Computation, Wiley Eastern Ltd., 4th edition, 2003

# MAJOR THEORY –

## OBJECT ORIENTED PROGRAMMING WITH C++

### Unit – I

***Introduction to C++ :*** Evolution of C++ - ANSI Standard – Object Oriented Technology – Disadvantage of Conventional Programming – Programming Paradigms – Preface to Object – Oriented Programming – Key Concepts of Object – Oriented Programming – Advantages of OOP – Object Oriented Languages.

***Input and Output in C++:*** Streams in C++ - Pre-Defined Streams – Buffering – Stream Classes – Formatted and Unformatted Data – Unformatted Console I/O Operations – Typecasting with cout Statement – Member Functions of Istream Class – Formatted Console I/O Operations.

***C++ Declarations :*** Parts of C++ Program – Types of Tokens – Keywords – Identifiers – Dynamic Initialization – Data Types in C++ - Basic Data Type – Derived Data Type – User – Defined Data Type – The void Data Type – Type Modifiers – Wrapping Around – Typecasting – Constants – Constant Pointers – Operators in C and C++ Precedence of Operators in C++.

### Unit – II

***Control Structures :*** Decision – Making Statements – The if-else Statements – The jump Statement – The goto Statement – The break Statement – The Continue Statement – The switch case statement – Loops – The for Loop – Nested for Loops – The While Loop – The do-while Loop.

***Functions in C++ :*** The main() Function – Parts of Function – Passing Arguments – L Values and R Values – Return by Reference – Default Arguments – Inline Functions – Function Overloading – Principles of Function Overloading – Library Functions.

### Unit – III

***Classes and Objects :*** Classes in C++ Declaring Objects – The Public Keyword – The Private Keyword – The protected keyword – Defining Member Functions – Data Hiding or Encapsulation – Classes, Objects and Memory – Static Member Variables and Functions – Static Object – Array of Objects – Objects as Functions Arguments – Friend

Functions – Recursive Member Function – Local Classes – The main() as a Member Function – Overloading Member Functions – Overloading main() Function.

***Constructor and Destructors :*** Characteristics of Constructors and Destructors – Applications with Constructors – Constructors with Arguments – Overloading Constructors – Constructor with Default Argument – Copy Constructors – The const Object – Destructors – Calling Constructor and Destructors – Qualifier and Nested Classes – Anonymous Objects – Recursive Constructor – Local vs Global Object.

**Unit – IV**

*Operator Overloading and Type Conversion :* The Keyword Operator – Overloading Unary Operators – Operator Return Type – Constraint on Increment and Decrement Operators – Overloading Binary Operators – Type Conversion – Rules for Overloading Operators.

*Inheritance:* Access Specifiers and Simple Inheritance – Types of Inheritances – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Virtual Base Classes.

*Pointers and Arrays:* Pointer Declaration - Pointer to Class – Pointer to Object – The this Pointer – Base Classes – Arrays – Characteristics of Arrays – Arrays of Classes.

**Unit – V**

*C++ and Memory:* Memory Models – The New and delete Operators – Dynamic Objects.

Binding, Polymorphism and Virtual Functions : Binding in C++ - Virtual Functions – Rules for Virtual Functions – Pure Virtual Functions – Abstract Classes – Working with Virtual Functions.

*Applications with Files :* File Stream Classes – Steps of File Operations – Finding End of a File – File Opening Modes – File Pointer and Manipulators – Manipulators with Arguments – Sequential Read and Write Operations- Binary and ASCII Files – Random Access Operations.

**Text Book:**

1. Ashok N.Kamthane, "Object Oriented Programming with ANSI and Turbo C++, Pearson Education, New Delhi.

**Reference:**

1. Herbert Schildt, "C++ : The Complete Reference" Tata McGraw Hill Publishing Company Limited, New Delhi.

2. E. Balagurusamy, "Object- Oriented Programming C++", Tata McGraw Hill Publishing Company Limited, New Delhi.

3. D. Ravichandran, "Programming with C++", Tata McGraw Hill Publishing Company Limited, New Delhi.

# MAJOR PRACTICAL – III

## OBJECT ORIENTED PROGRAMMING WITH C++ - LAB

1. Write a C++ Program to declare all members of a class as public. Access the element using objects.

2. Write a C++ Program to print sum of sin series.

3. Write a C++ Program to calculate simple interest. Hide the data element of the class using private keyword.

4. Write a C++ Program to show difference between static and non-static member variables.

5. Write a C++ Program to declare array of objects. Initialize and display the contents of array.

6. Write a C++ Program to access private data using non-member function. Use friend function.

7. Write a C++ Program to create a class MAT of size of m x n. Define the matrix operations addition, subtraction, input and output by overloading +,-,>> and << operators respectively.

8. Write a C++ Program to create an abstract class "Queue". Create two subclasses "StaticQ" and "DynamicQ". Class "Queue" contains member functions insert, delete, create, isempty, isfull and display functions. DynamicQ overrides insert to change size of queue at runtime if queue is already full.

9. Write a C++ Program to overload member function of class.

10. Write a C++ Program to invoke constructor and destructor.

11. Write a C++ Program that overload + & relational (suitable) operator to perform the following operations.

   i) Concatenation of two Strings

   ii) Comparison of two Strings

12. Write a C++ Program to create multilevel inheritance. Create classes A1, A2 and A3.

13. Write a C++ Program to derive a class student from multiple base classes mark and sports. Print the details of the student including percentage.

14. Write a C++ Program to show hierarchical inheritance.

15. Write a C++ Program to declare an object and pointer to the class. Invoke member functions using pointer.

16. Write a C++ Program to create a class employee that contain two functions getdata() &putdata(). Create array of objects for the specified class and read the values using getdata(). Print the values using putdata().

17. Write a C++ Program to print the details vehicle using virtual function. Create a class vehicle and have a virtual function make(). Create another class two wheeler is inherited from vehicle class that invoke the virtual function make(). Print details of two wheeler. Create another class four wheeler is inherited from the two wheeler that invoke virtual function make(). Print details of four wheeler.

18. Write a program to read a line of text and replace one word with another word.

19. Write a C++ Program function template for finding the minimum value contained in an array.

20. Write a C++ Program to perform read and write operations with objects using write() and read() functions.

## ALLIED THEORY III

## DATA STRUCTURES

### Unit – I

*Introduction and Overview:* Definitions – Concept of Data Structures – Overview of Data Structures – Implementation of Data Structures. One – Dimensional Array – Memory allocation of an Array – Operation on Arrays – Application of Arrays – Multidimensional Arrays – Two – dimensional Array – Spare Matrices – Three Dimensional an n – dimensional arrays – Pointer Arrays.

### Unit – II

*Linked Lists:* Definition – Single Linked List – Representation of a Linked List in  memory – Operations on a Single Linked List – Circular Linked List – Double Linked List – Operations on a Double Linked List – Circular Double Linked List – Operations on Circular Double Linked List – Applications of Linked List – Sparse Matrix Manipulation – Polynomial Representation – Dynamic Storage Management – Memory Representation – Fixed Block Storage – Variable Block Storage.

### Unit – III

*Stacks :* Definitions – Representation of a Stack – Array Representation of Stacks – Linked List Representation of Stacks – Operations on Stacks – Application of Stacks – Evolution of Arithmetic Expressions – Implementation of Recursion – Factorial Calculation – Quick Sort.

*Queue :* Definition – Representation of Queues – Representation of Queues using an Array – Representation of a Queue using a Linked List – Various Queue Structures – Circular Queue – Dequeue – Priority Queue.

### Unit – IV

*Tables :* Hash Tables – Hashing Techniques – Collision Resolution Techniques – Closed Hashing – Open Hashing - Comparison of Collision Resolution Techniques. Representation of Binary Tree – Linear Representation of Binary Tree- Linked Representation of Binary Tree – Physical Implementation of a Binary Tree in Memory – Operation on a Binary of Binary Tree – Physical Implementation of a Binary Tree in Memory – Operation on a Binary Tree – Insertion – Deletion – Traversals – Merging together Two Binary Trees – Types of Binary Trees – Expression Tree – Binary Search Tree – Heap Tree – Thread Binary Tree.

### Unit – V

*Sorting:* Sorting Techniques – Straight Insertion Sort – Straight Selection Sort – Heap Sort – Bubble Sort – Shell Sort – Quick Sort – Merge Sort. Searching – Linear Search Techniques –  Linear Search with Array – Linear Search with Linked List – Linear Search with Ordered List – Binary Search.

**Text Book:**

1. "Classic Data Structures" DebasisSamanta, PHI Learning Limited, New Delhi, 2009 Second Edition.

**ALLIED PRACTICAL – III**

**DATA STRUCUTRES – LAB LIST**

1. Search an element in an array using Binary Search.

2. Stack Implementation using Array.

3. Queue implementation using Array.

4. To manipulate a linked list.

5. Infix to postfix expression.

6. Evaluation of Postfix expression

7. Tree Traversal

8. Merge Sort

9. Selection Sort

10. Quick Sort

## SEMESTER – IV

## MAJOR THEORY – JAVA PROGRAMMING

**Unit – I**

**The Genesis of Java :** Overview of Java – Development of Java – JDE – Data Types – Variables – Arrays – Type Conversion and Casting – Operators – Precedence – Control Statements.

**Unit – II**

*Introduction Classes :* Objects – OOPs Concepts – Declaring Objects – Introducing Methods – Constructors – Overloading – this keyword – Garbage Collection – finalize () method – More Examples. Objects as parameters – returning objects – recursion – Access Control – Static – Final – Nested and Inner Classes – Command Line Arguments – Sample Programs.

**Unit – III**

*String and String Buffer Class Inheritance :* Types of Inheritance – Method Overriding – Dynamic method Dispatch – Abstract Class – Final with Inheritance – More Examples. Packages – Access Protection – Importing Packages – Interfaces – Implement and Applying Interfaces – Sample Programs.

**Unit – IV**

*Exception Handling:* Exception Types – Our Own Exception – Handling Exception – Java"s Built in Exception – Thread Class and Runnable Interface – Extending Thread – Creating Multiple Threads – isAlive () and join() methods – Synchronization – suspend (), resume () and stop() threads – Example Programs.I/O packages – Input Stream – Output Stream – File Input and Output Stream – Applet Class – An Applet Skeleton – Simple Applet Display Methods – Example Programs.

**Unit – V**

*Event Handling :* Delegation Event Model – Event Classes – Sources of Events – Event Listener Interface – AWT Controls – Labels – Buttons – Check Boxes – Check Box Group – Lists – Scroll Bar – Text Area – Menu Bars and Menu – Layout Managers – Examples.

**Text Book :**

1. Herbert Schildt, "Java 2" Fourth Edition, Tata McGraw – Hill Publishing Company Ltd, New Delhi.

**Reference :**

1. Peter Norton and William Stanek, "Guide To Java Programming", Techmedia, New Delhi.

2. Martin RineHart, "Java Database Development" Ed – 1998, Tata McGraw – Hill Publishing Company Ltd, New Delhi.

# MAJOR PRACTICAL – IV

## JAVA PROGRAMMING – LAB

1. Create a Simple program with your own detail.

2. Use Overload i) Method    ii) Constructor

3. Create a Program for object as parameters and returning objects.

4. Create a program with abstract class.

5. Create a program using Multilevel Inheritance.

6. Develop a Program using Interface.

7. Create and Import Package (Minimum Three Classes)

8. Create Our Own Exception for Employees.

(Constraints 1.Age > 18 and < 58 2.Dept No. 10 || 20 || 30 || 40)

9. Suspend, Resume and Stop Threads (Minimum 3 Threads)

10. Read and Write the content of a file using I/O Packages.

11. Display a Simple Banner Applet.

12. Event Handling Mechanism for Keyboard and Mouse .

13. Create a Login form.

14. Simple Web Presentation using HTML Tag (Use 3 Pages)

15. Create a Program for Moving Ball (Start and Stop)

16. Create a Simple Java Database with 4 fields.

## MAJOR THEORY

## OPERATING SYSTEM

**Unit – I**

*Operating System:* What is an Operating System? – Computing System Architecture : Desktop Systems – Multiprocessor Systems – Distributed Processing – Cluster Systems – Hand held Systems – Functions and Structure – Difference services of the Operating System – Users of system Calls – issue of portability – users view of the operating system – Graphical user interface – Operating System Structure – virtual machine – booting.

**Unit – II**

**Information Management:** File System – Device Driver – Terminal I/O – CD – ROM. Process Management: Introduction – What is process? Evolution of multiprogramming – Context Switching – Process States – Process State Transitions – Process Control Block – Process hierarchy – Operation on a process – create a process – kill a process – dispatch a process – change the priority of a process – Block a process – dispatch a process – time up a process wake up a process – Suspend/resume operation – Process Scheduling – Multithreading.

**Unit – III**

*InterProcess Communication:* the producer/Consumer Problems – solutions to the producer – consumer problems – Classical IPC problems.

**Deadlocks:** Introduction – Graphical representation of deadlock – deadlock prerequisites – deadlock strategies.

**Unit – IV**

*Memory Management:* Introduction – Single Contiguous memory management – fixed partition memory management – variable partitions – non-contiguous allocation – paging – segmentation – combined system – virtual memory management system.

**Unit – V**

*Information Management:* File System – Device Driver – Terminal I/O – CD – ROM. Case Study: LINUX – Introduction – UNIX and LINUX: A Comparison – Process Management – Process Scheduling – Memory Management – File Management – Device Drivers – Security.

**Text Book:**

1. Operating Systems – Achyut S Godbole, Tata McGraw – Hill Publishing Company, New Delhi, 2nd Edition, 2005.

2. Operating System – Harvey M. Deitel, Paul J Deitel. David R. Choftness, Third Edition, Pearson.

**Reference:**

1. Operating Systems, Internals and Design Principles, William Stallings, PHI, 2008.

2. Operating System Concepts – Silverschatz and Galvin, 6th Edition, John Wiley & Sons, Inc., 2004.

3. An Introduction to Operating Systems – Concepts and Practice, Pramod Chandra P. Bhatt, Prentice Hall of India, 2007.

# MAJOR THEORY

## RELATIONAL DATA BASE MANAGEMENT SYSTEM

**Unit - I**

**Introduction:** Purpose of Database Systems – Data Models – Database Languages – Transaction Management – Storage Management – DBA – Database Users – System Structure. E-R Model – Entities and Entity sets – Relationship Sets – Mapping Constraints – E-R Diagram.

**Unit – II**

*Structure of Relational Databases :* Relational Algebra – Tuple Relational Calculus – Domain Relational Calculus – Integrity Constraints – Normalization – Boyce – Codd Normal Form – Third Normal Form – Fourth Normal Form – Domain – Key Normal Form.

**Unit – III**

*Basic SQL Operations :* Creating a Table – Insert – Rollback – Commit – Auto commit – Delete – Update – Select, From, Where and Order by – Single value tests – Single value tests – LIKE – Simple tests against a list of values – Combining Logic – Dropping tables – Dropping a Column – Creating a table from a table – Data Functions – Conversation functions – Translate – Decode – Creating a view – Advanced Sub queries – Outer Joins – Natural and Inner Joins – Union, Intersect & Minus – Synonyms – Indexes – Tables space – Clusters – Sequences.

**Unit – IV**

*Basics of Object :* Relational Databases : Objects – Abstract Data Types – Nested tables – Varying arrays – Large Objects – References Object Views – Naming conventions for objects – structure of an object – Users, Roles and Privilege : Creating a user – Password management – Three Standard roles – Format for grant command – Revoking privileges – What users can Grant : Moving to another user – Create Synonym – Create a role – Granting privileges to a role – Granting a role to another role – Adding Password to a role – Removing password from a role – Enabling & Disabling Roles – Revoking Privilege from a role – Drop role.

**Unit – V**

*An Introduction to PL/SQL :* PL/SQL Overview – Declaration section – Executable commands section – Exception handling Section – Triggers : Syntax – Types of Triggers : Row – Level – Statement – Level – before & after – Instead of Schema – Database – Level Triggers – Enabling & Disabling Triggers – Replacing & Dropping Triggers – Procedures, Functions & Packages : Syntax – Compile – Replace – Drop Procedure, Functions & Packages – Cursor Management.

**Text Books:**

1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan "Database System Concepts" McGraw – Hill Education, 2010.

2. Kevin Loney, George Koch and the Experts at TUSC, "ORACLE 9i The Complete Reference", Tata McGraw – Hill Publishing Company Ltd., New Delhi.

3. Database Systems RamezElmasri, Shankant B. Navathe – 6th Edition – Pearson.

**Reference:**

1. Rajesh Narang – "Database Management Systems", PHI Learing Pvt. Ltd., 2006.

2. Raghu Ramakrishnan, Johannes Gehrke, "Database Management Systems", McGraw – Hill Education, 2002.

3. Michael Abbay, Mike Corey, Ian Abramson, "ORACLE 9i A Biginner"s Guide", TataMcGraw – Hill Publishing Company Ltd., New Delhi, 2002.

4. The Database Application Book using the MYSQL Database Gehani – Universities Press.

# ORACLE LAB

1. Creating, Modifying and Describing Tables

2. Inserting, Modifying and Deleting Rows

3. Dropping, Disabling/Enabling Constraints

4. Retrieving Records/Rows from the Table

5. Retrieving Rows with Character Functions

6. Retrieving Rows with Number & Date Functions

7. Retrieving Rows with Group functions & HAVING

8. Retrieving Rows by Joining Tables.

9. Retrieving Rows with Set Operators.

10. Creating Views ,Sequences and Synonyms

11. Simple PL/SQL Programs.

12. PL/SQL Programs with Control Structures.

13. PL/SQL Programs with Looping Structures.

14. PL/SQL Programs with Cursors.

15. PL/SQL Programs with Cursor for loop.

16. PL/SQL Programs with Pre Defined Exception Handling.

17. PL/SQL Programs with User Defined Exception Handling.

18. Creating and Calling Procedures.

19. Creating and Calling Functions.

20. Creating and Executing Packages.

21. Working with Triggers.

## REFERENCES

1. "Database Systems Using Oracle", Nilesh Shah, Second Edition
2. www.w3schools.com – Oracle

## SKILL BASED SUBJECT SYLLABUS

**Subject : DTP**

**Page Maker**

1. Design of ID Card (3" * 2").

2. Design of Visiting Card (3.5" * 2").

3. Design of an attractive invitation Card (5.5" * 8").

4. Design Letter Pad. (7.5" * 9").

5. Preparation of a small booklet with 6 pages (3.5" * 4.5").

6. Design a hand bill (5.5" * 8.5").

7. Create a advertisement for your college.

8. Design your college progress card.

9. Create a receipt bill with counter foil.

10. Create a graph/pie chart.

**Photoshop**

1. Design of a brochure for an institution.

2. Seasonal Greeting Card.

3. Transporting an image from one background to another.

4. Design a web page poster (1004 * 750)/text book cover page.

5. Crop and image/rotate an image.

**CorelDraw**

1. Create an object and fill with multiple colours.

2. Design a book cover.

3. Create a frame and enter a paragraph with different formats of text.

4. Export any five image in a single applications.

5. Design page frame by inserting image and objects.

## SKILL BASED SUBJECT SYLLABUS

## VISUAL PROGRAMMING

**Unit I**

**Getting started with Visual Basic 6.0**: Introduction to Visual Basic - Visual Basic 6.0 Programming Environment – Working with Forms – Variables, Data types and Modules – Procedures and Control Structures – Arrays in Visual Basic.

**Working with Controls**: Creating and using Controls – Working with Control Arrays.

**Unit II**

**Menus, Mouse Events and Dialog Boxes**: Introduction – Mouse Events – Dialog Boxes - **Graphics, MDI, and Flex Grid**: Graphics for Applications – Multiple Document Interface (MDI) – Using the Flex Grid Control.

**Unit III**

**ODBC and Data Access Objects :** Data Access Options

**ODBC using Data Access Objects and Remote Data Objects**: Open Database Connectivity (ODBC) – Remote Data Objects (RDO).

**Unit IV**

**Data Environment and Data Report :** Introduction – Data Environment Designer - Data Report

**Object Linking and Embedding**: Introduction - OLE Fundamentals – Using OLE Container Controls – Using OLE Automation Objects - OLE Drag and Drop

**Unit V**

**Built-In ActiveX Controls :** Working with Built-In ActiveX Controls – Additional ActiveX Controls

**Working with ActiveX Data Objects**: An Overview of ADO and OLE DB – ADO Object Model **Files and File System Controls**: File System Controls – Accessing Files.

**Text Book:**

1. Visual Basic 6.0 Programming – Content Development Group – Tata McGraw-Hill Publishing Company Limited, New Delhi.

**Reference Books:**

1. VISUAL BASIC 6 in Record Time by Steve Brown, BPB Publications.
2. VISUAL BASIC 6 from the Ground UP – GARY CORNELL – Tata McGraw Hill.

## INTRODUCTION TO INFORMATION TECHNOLOGY

### Unit – I

*Information Technology Basics :* Introduction, Information, Technology, Information Technology, Present Scenario, Role of Information Technology, Information Technology and Internet, Careers in IT industry. Computer Organization and Architecture: Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes.

### Unit – II

*Computer Memory and Storage Introduction:* Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM, ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks.

### Unit – III

*Input Output Media:* Introduction, types of input devices, types of output devices. Multimedia Essentials : Introduction, Multimedia : Definition, Building Blocks of multimedia, multimedia system, multimedia applications, Virtual reality.

### Unit – IV

*The Internet:* Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet – Internet Applications – Data over Internet. Internet Tools : Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging.

### Unit – V

*Emerging Trends in IT :* Introduction, E-Commerce – Electronic Data Interchange – Mobile Communication – Bluetooth – Global Positioning System – Infrared Communication – Smart Card – Imminent Technologies.

**Text Books :**

1. Introduction to Computers and Information Technology, D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter, Shekina Publications.

**Reference Books :**

1. Introduction to Information Technology ITL Education Solutions Limited, Pearson Education.

2. Fundamentals of Information Technology By Alexis Leon & Mathews Leon Vikas Publication – New Delhi.

## NON – MAJOR ELECTIVE PAPERS – II Other than B.Sc. (IT) & B.Sc. (CIT)

## BASIC PROGRAMMING DESIGN

**Unit – I**

*Introduction:* Algorithms, Flowcharts, Types of Programming Languages, Selection of Programming Languages, Program Writing Debugging.

**Unit – II**

*Flow Charts:* Elementary Concepts – Introduction, Kinds of flow charts, symbols used in flow charts, Advantages of flow charts, examples, constants and variables.

**Unit – III**

*Flow Charting Simple Computation:* Introduction, illustrating examples, conclusions.

**Unit – IV**

*Subscripted Variables:* Introduction, basic concepts of subscripted variables, one dimensional array, illustrating examples, conclusions.

**Unit – V**

*Multidimensional Arrays:* Introductions, definitions, matrix operations, illustrating examples, beyond two dimensions, conclusions – Introduction to File Structure.

Introduction, Concept of data files, Types of Data Files, File Organization methods, File Processing activities, Conclusions.

**Text Book:**

1. Basic Programming Design, D.S. Arul Selvan& A.A. RegiesonSylum Shalom Publications, Green St, Nagercoil.

**Reference :**

1. Insight into Flowcharting Raj K. Jain By S. Chand & Company Ltd.