

## **B.Voc.(CS)-1<sup>st</sup> Semester**

### **Programming Methodology and C-programming**

**Unit-1:** Program concept, characteristics of programming, various stages in program development, programming aids algorithms, flow charts-symbols, rules for making flow-chart, advantage & disadvantage, pseudo codes, decision table, programming technique & tools programming techniques- top down, bottom up, modular, structured-features, merits and demerits, comparative study, programming logic- simple, branching, looping, recursion, cohesion and coupling, programming testing and debugging and their tools.

**Unit-2:** Introduction & features of C, structure of C program, variables, Expression, identifiers, keywords, data types, constants, operator and expression operator, arithmetic logical, relational, conditional and bit wise operators. Precedence and associativity of operators, type conversion in expression, basic input/output and library function single character input/output i.e. getch(), getchar(), putchar(), formatted input output i.e. printf(), and scanf(), library function – concepts, mathematical, & character functions.

**Unit-3:** If statement, if.....else statement, nested of if.....else statement, else if ladder, the? operator, goto statement, switch statement, compound statement, loop controls, for, while, do-while loops, break continue, ARRAYS single & multi dimension array , ARRAY declaration and initialization of arrays, strings: declaration, initialization, functions.

**Unit-4:** The need and form of C function, User defined and library function, function arguments, return values and nesting of function, recursion calling of function, recursion, calling of functions, array as function argument, scope and life of variables- local and global variable, storage class specified auto, extern, static, register.

**Unit-5:** Defining structure, declaration of structure variable, accessing structure members, nested structures, array of structure, structure assignment, structure as function argument function that return structure, union.

#### TEXTS & REFERENCE BOOKS

- E. Balaguruswamy, “Programming in c”, YHM Publication.
- Mahapatra, “Thinking in c”, PHI publication.

# **B.Voc.(CS)-2<sup>nd</sup> Semester**

## **DATA STRUCTURES**

### **UNIT I**

The concept of data structure, Abstract data type, Concept of list & array, Introduction to stack, Stack as an abstract data type, Primitive operation on stack, Stacks application; Infix, post fix, Prefix and Recursion, Multiple stack, Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, De queue, Priority queue, Applications of queue.

### **UNIT II**

Introduction to the Linked List, Basic Operations on linked list, Stacks and queues linked list, Header nodes, Doubly nodes, Doubly Linked List, Circular linked List Stacks & Queues as a Circular Linked list, Application of Linked List

### **UNIT III**

Trees, Basic Terminology, Binary Trees, Trees Representations using Arrays & Linked List, Basic operation on Binary tree, Traversal of binary trees; In order, Preorder & post order, Application of Binary tree, Threaded binary tree, B- tree & height balanced tree, Binary tree representation of trees.

### **UNIT IV**

Analysis of algorithm, complexity using big 0 notation. Searching. Linear search, Binary search, their comparion. Sorting: Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods. Hash table, Collision resolution Techniques.

### **UNIT V**

Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation o' graphs, Graph Traversal- depth first & Breadth first search, Spanning Trees, minimum spanning tree, Shortest path algorithm.

#### **TEXT REFERENCE BOOKS:**

Fundamentals of Data Structure, by S. Sawhney & E. Horowitz

Data Structure by, Lipschusts (Schaum's Out line series Mcgraw Hill Publication)

Data Structure by , Trembley & Sorrenson.

Fundamentals of Computer Algorithm by Ellis Horowitz and Sartaj Sawhney.

## **B.Voc.(CS)-3<sup>rd</sup> Semester**

### **OBJECT ORIENTED PROGRAMMING WITH C++**

#### **UNIT-I**

**Overview of C++:** Object oriented programming, Concepts, Advantages, Usage. C++ Environment:: Program development environment, the language and the C++ language standards, Introduction to various C++ compilers, C++ standard libraries, Prototype of main() function, Data types.

Creating and compiling C++ Programs using IDE and through command line, IDE features for compiling, debugging, tracing and testing the C++ program in Turbo C++/Borland C++/Micro Soft VC++/GNU C++ compiler. Classes & Objects: Classes, Structure & Classes Union & Classes, Friend function, Friend classes, Inline function, Scope resolution operator, Static class members, Static data member, Static member Introduction, Passing objects to function, Returning objects, Object assignment.

#### **UNIT-II**

Array, Pointers References & The Dynamic Allocation operators: Array of objects, Pointers to object, Type checking C++ pointers, The This pointer, Pointer to derived types, Pointer to class members, References:

Reference parameter, Passing references to objects, Returning reference, independent reference, C++ Dynamic Allocation operators, Initializing allocated memory, Allocating Array, Allocating objects. Constructor & Destructor

Introduction, Constructor, Parameterized constructor, Multiple constructor in a class, Constructor with default argument, Copy constructor, Default Argument Destructor.

#### **UNIT-III**

Function & Operator overloading: Function overloading, Overloading constructor function finding the address of an overloaded function, Operator Overloading: Creating Prefix & Postfix forms of the increment & Decrement operation, Overloading the shorthand operation ( i.e., +=etc) Operator overloading restrictions, Operator overloading using friend function Overloading New & Delete, Overloading some special operators, Overloading [ , ], fl, -, comma operator, Overloading <<.

#### **UNIT-IV**

Inheritance:

Base class Access control, Protected members, Protected base class inheritance, inheriting multiple base classes, Constructors, destructors &

Inheritance, When constructor & Destructors, function are executed, Passing Parameters to base class constructors, Granting access, Virtual base classes.

Polymorphism:

Virtual function Pure Virtual functions, Early Vs. late binding C++ I/O, system basics; C++ streams, The basic stream classes, C++ predefined streams, Formatted I/O, Formatting using the ios members, Setting the format flags, Clearing format flags, An overloaded form of setf, Examining the formatted flags, Setting all flags, Using width0, precision0, and fill0, Using manipulators to format I/O, Creating your own manipulators.

Text & Reference Books

Herbert Schildt "C++ The Complete Reference" TMH Publication ISBN 0-07-463880-7

R. Subburaj "Object Oriented Programming With C++" Vikas Publishing House, New Delhi, ISBN 8 1-259- 1450-1

Balguruswamy "C++ TMF-I Publication ISBN 0-07-462038 M.KUMAR "Programming in C++" TMH Publication. R. [afore "Object Oriented Programming C++",

## **B.Voc.(CS)-4<sup>th</sup> Semester**

### **Computer Networks**

#### **UNIT—I**

Networking- Needs and advantages, network, types, client, server, and peers, introduction to various types of servers. Transmission technology- single transmission- digital signaling, analog signaling, Asynchronous & synchronous transmission, Wired & wireless transmission, base band & broad band transmission, Transmission Media types-properties & specialty of media types, comparative study. Network topology-Bus, Star, Ring, Star bus, Star ring Mesh Feature, Advantages and disadvantage of each type.

#### **Unit-II**

Network adapters-working principles, configuration & selection ,Network protocols- Hardware Protocols, Software protocol. The theoretical Network Model OS! IEEE802standards,802.3,802.4,802.5 Real world networks-Ethernet ,Fast Ethernet ,Token Ring ,FDDI, ATM, ARCnet & Apple Talk.

#### **UNIT-III**

Network Scaling- No, of Nodes, distance, software, speed ,special requirements Connectivity Devices: Modem, Repeater, Hub-Active Passive & 4ntelligent ,Bridge-local, Remote, Wireless, Routers-Static & Dynamic ,Switches & its types. Brouters & Ga,teways, Overview of TCP/iP reference model.

TCP/IP Protocol Suite- Comparison between OSI & TCP/IP model, Classification of TCP/IP protocolsI P,TCP,UDP,ARP,ICMP.TCP/IP Services Protocols — DHCP,DNS,WINS,FTP,SMTP,TELNET,NFS.

IP Addressing and subnet-I P Address-Class A,B & C Domain Name Addressing, URL, e-mail address, Subnet & subnet mask

#### **UNIT-IV**

Network building blocks requires for setting up a small LAN using Windows in a Office. Hardware & Software required, simple Installation and configuration of Networking under Windows. Using Hyper Terminal in Windows, overview and using Network Setup Wizard in Windows, Some basic networking configuration using Windows 95!981XP/2000/2003 server Connecton Sharing in Windows.

#### **UNIT-V**

Network Security network security issues, comon threats, security Barriers in the network pathways. Official levels of computer security, Types of security controls. approaches to

network security. Ethical Hacking. Firewalls- Need and features of firewalls, types of firewall technology - network level and Application level, IP packets filter screening routers, limitations of firewalls. Encryption and Decryption- cryptography ,Type of encryptions, encryption Keys single/secret/private key encryption, public/private key encryption. Overview of Digital Signature and Certificates technology.

TEXT-

Ames Chellis Charles Perkins, Matthew Strebe “ Networking Essentials :Study Guide MCSE”. Second Edition, BPB publications.

S.K.Basandra &S.Jaiswal,”

Local Area Networks” .Galgotia publications

MCSE Windows 2000 Network Infrastructure Design

Andrew &

Tanenbaum,”

Computer Network”

William Stallings,”

Data and Computer Communication”

Prakash C Gupta.”

Data Communication ‘I

## **B.Voc.(CS)-5<sup>th</sup> Semester**

### **PROGRAMMING WITH JAVA**

**UNIT 1**— C++ Vs JAVA, JAVA and Internet and WWW. JAVA. support systems. JAVA environment, JAVA

environment, JAVA prOgram structure, Tokens, Statements, JAVA virtual machine. Constant & Variables, Data types. Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting , operators. Arithmetic, Relational, Logical, Assignments. Increment and Decrement, Conditional. Bitwise. Special. Expressions & its evaluation. If statement, if -- else—statement, Nesting of if - else—statements, else ... if Ladder. Switch, ? Operators. Loops—while. do, for, jumps, in Loops, Labeled Loop.

#### **UNIT 2 -**

Defining a class. Adding variables and Methods, Creating objects, Accessing class members Constructors. Methods overlaading . static members, Nesting of methods. Inheritance Extending a class, overriding ethods, Final variables and methods, final classes, Finalize methods. Abstract methods and classes, Visibility control.

**UNIT 3**— Arrays, One dimensional&%wo dimensional, strings, vectors. Wrapper classes. Defining

Interface Extending Interface, Implementing Interface , Accessing Interface Variable, System Packages, Using System Package, Adding a class to a package, Hiding classes.

**UNIT 4**— Creating Threads. Extending the Threads class, Stopping and Blocking a Thread, Life cycle

of a Thread, Using thread methods. Thread exceptions. Thread priority, Synchronization, Implementing the Unable Interface,

**UNIT S** — Local and remote applets Vs Application , Writing Applets Life cycle. Creating an

Executable Applet, Designing a Web Page. Applet Tag . Adding Applet to HTML file, Running the Applet, Passing Parameters to Applets, Aligning' the Display, HTKL Tag & Applets, Getting Input from the User.

#### **TEXT & REFERENCE BOOKS:**

E. Balaguruswamy, Programming in JAVA' 2 edition, TMH publications ISBN 0-07-463542-5.

Peter Norton, Peter Norton Guide to JAVA Programing. Techmedia publications ISBN 81-87105-61-5

## **B.Voc.(CS)-6<sup>th</sup> Semester**

### **ASP.NET AND C#**

**UNIT 1—** Overview of ASP. NET frame work, understanding ASP. NET controls, Application Web servers,Instigation of IIS, Web forms, Web form controls- server controls, client controls, web forms & HTML,

Adding controls to a web form , Buttons, Text Box, Labels, Checkbox, radio buttons, list box, etc,Running a Web Application, Creating a multiform Web project,

**UNIT 2—** Form Validation: Client side validation, server side validation

Validation Control:Required Field Comparison range Calendar control, Ad rotator Control, Internet Explorer control,State Management-View state, Session state, Application state,

### **UNIT 3-**

Architecture of ADO. Net, nected and Disconnected Database, Create Connection using ADO.NET Object Model, Connection Class, Data Adapter Class, Dataset Class. Display data on Data bound Controls and Data Grid.

Database Accessing on web applications; Data Binding concept with web, creating data grid, Binding standard web server controls. Display Data on web from using Data bound control.

### **UNIT 4-**

Writing dataset to XML, Reading database with XML.Web service; Introduction, Remote method call using XML,SOAP. web service descriptionLanguage, building & consuming a web service, Leb Application deployment.

### **UNIT 5-**

Overview of C#, c# and NET, similarities & differences from JAVA, Structure of C# program.Language features: Type system, boxing and un boxing, flow controls, classes, interfaces,

Serialization, Delegates. Reflection.

### **TEXT BOOKS& REFERENCE BOOKS**

VB.NET Black book . by steven holzner- dre3amtech

ASP NET Unleashed

• C# Programming WROX Publication

C# Prograrmiuing Black Book by Matt telles.