INTRODUCTION TO SOFTWARE ORGANISATION

1. **INTRODUCTION TO COMPUTERS**
   Computers – introduction, Computer System Characteristics, Strength and Limitations of Computer, Development of Computers, Types of Computers, Generations of Computers. Introduction to Personnel Computers – Uses of PC's Components of PC's, Evolution of PC's Developments of Processors, Architecture of Pentium IV, Configuration of PC's Input Devices; Output Devices.

2. **COMPUTER ORGANIZATION**
   Central Processing Unit – Arithmetic Logic Unit, Control Unit, Registers, Instruction Set, Processor speed.
   Storage Devices – Storage and its need, Storage Evaluations units, Primary Storage, Secondary Storage, Data Storage and Retrieval Systems, SIMM, DIMM, Types of Storage Devices.

3. **COMPUTER SOFTWARE**
   Basics of Software – needs of Software, Types of Software; Free Domain Software; Open Source software; Compiler, Interpreter and Assembler; linker and Loader; Debugger; Integrated Development Environment;
   Operating System – Introduction, Uses of OS, Functions of OS, Booting process, Types of Reboot, Booting from different OS, Types of OS, DOS, Windows, Linux Programming Languages – Introduction, Comparison between Human and Computer Language; Program ; Data, Information and knowledge; Characteristics of Information, Types of Programming Languages; Generations of Languages; Program Development Steps; Programming Paradigms; Object-Oriented Programming; Structured Programming Functional Programming, Process Oriented programming.

4. **COMMUNICATION, NETWORKS AND INTERNET**
   Communication – Introduction, Communication process, Communication Types, Communication Protocols, Communication Channels/Media.
   Networks – Introduction; Types of Network; Topology; Media –NIC, NOS, Bridges, HUB, Routers, Gateways.
   Internet – Introduction, Growth off Internet, Owner of Internet, Internet Service provider, Anatomy of Internet, ARPANET and Internet History of Word Wide Web, Services Available, on Internet – File Transfer Protocol, Gopher, E-mail, Telnet, Newsgroups, WWW, Archie Whols, WAIS, Veronica, Internet. Applications of Computers and Information Technology.

5. **LINUX**
   Open source Software concept and evolution of Linux; Features of Multi-User Operating System; Structure of Linux OS; Security Features of Linux, File System, Directory Structure and related commands. Linux Editors & editor commands, Linux commands cd, md, rm, mv, cp, ls, cat, find, grep.

PROGRAMMING IN 'C' & 'C++'

1. **INTRODUCTION :**

   Introduction Character set, Identifiers and Keywords, Variables, Displaying variables, Reading Variables, Character and Character String, Qualifiers, Type define Statements, Value initialized variables, Constants, Constants Qualifier, Operators and Expressions, Operator Precedence and Associativity, Basic input output: Single Character I\O, General Outputs, Types of Characters in format string, Scanf with specifier, Searchset Arrangements and Supression Character, Format Specifier for scanf.

2. **CONTROL STRUCTURES & FUNCTIONS –**

   Control Structure: If – statement, If – else statement, Multiway decision, Compound Statement, Loops: For – loop, While –loop, Do –While loop, Break statement, Switch Statement, Continue statement, Go to statement.

   Functions : Function man, Functions accepting more than one parameter, User defined and library functions, Concept associatively with functions, function parameter, Return value, recursion comparisons of iteration and recursion variable length argument list.

3. **ARRAY & POINTERS –**

   Scope and Extent, Arrays, Strings, Multidimensional Arrays, Strings, Array of Strings, Function in String, Pointers: Definition and use of Pointer, address operator, Pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer pointer and arrays, passing arrays to functions, pointer and functions, accessing array inside functions, pointers and two dimensional array of pointers, pointers constants, pointer and strings.

4. **STRUCTURE AND UNION –**

   Declaring and using Structure, Structure initialization, Structure within Structure, Operations on Structures, Array of Structure, Array within Structure, Creating user defined data type, pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union.

   Dynamic memory allocation – Library function for Dynamic memory allocation, Dynamic Multi – Dimensional arrays, File :- Introduction Structure, File handling, Function file types, Unbuffered and buffered file, Error handling. Low level file input – Output.

5. **INTODUCTION TO C++**

   Concept of Object Oriented Programming System. Characteristics of OOP Language, object class, advantages of OOPs over procedural oriented program, inline function, function overloading, creating class and object, constructor, destructor, operator overloading, Friend function, Inheritance.

DBMS (SQL/ORACLE)

1. **INTRODUCTION TO DBMS**

   Purpose of database systems, views of data, Data Modeling, Database Languages, Transaction Management, Storage Management, Database Administrator and User, Database System Structure.

2. **E-R MODEL**

   Basic concepts, Constraints, Keys, Mapping Constraint, E-R Diagram, Weak and Strong Entity sets, E-R Database Schema, Reduction of an E-R Schema to Table.

3. **RELATIONAL MODEL**

   Structure to Relational Database, Relational Algebra, The Domain Relational Calculus, Extended Relational – Algebra Operation, Modification of database, Views.

4. **RELATIONAL DATABASE DESIGN**

   Pitfall in Relational Database Design, Decomposition Functional Dependencies, Normalization: 1NF, 2NF, BCNF, 3NF, 4NF, 5NF.

5. **INTRODUCTION TO RDBMS SOFTWARE – ORACLE**

   5.1 **INTRIDUCTION:-** Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL*PLUS.

   5.2 **DDL AND DML :-** Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries, Views: What is Views, Create, Drop and Retrieving data from views.

   5.3 **SECURITY:-** Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges.

   5.4 **PL-SQL/TSQL :-** Block Structure in PL – SQL/TSQL, Variable and constants, Running PL – SQL/TSQL in the SQL *PLUS, DATA base Access with PL – SQL/TSQL, Exception Handling, Record Data type in PL – SQL/TSQL, Triggers in PL – SQL/TSQL.

GUI - PROGRAMMING IN VISUAL BASIC

1. **INTRODUCTION TO VISUAL BASIC**

   Editions of Visual Basic, Event Driven Programming, Terminology, Working environment, project and executable files, Understanding modules, Using the code editor window, Other code navigation features, Code documentation and formatting, environment options, code formatting option Automatic code completion features.

2. **CREATING PROGRAM**

   Introduction to objects, Controlling objects, Properties, methods and events, Working with forms, Interacting with the user: MsgBox function, InputBox function, Code statements, Managing forms, Creating a program in Visual Basic, Printing.

3. **VARIABLE AND PROCEDURES**

   Overview of variables, Declaring, Scope, arrays, User-defined data types, constants working with procedures, Working with dates and times, Using the Format function, Manipulating text strings.

4. **CONTROLLING PROGRAM EXECUTION**

   Comparison and logical operators, if...Then statements, Select case Statements looping structures, Using Do..loop structures, For .... Next statement, Exiting a loop.

5. **WORKING WITH CONTROLS**

   Types of controls, Overview of standard controls, ComboBox and ListBox, Option Button and Frame controls Menu, Status bars, Toolbars, Advanced standard controls, ActiveX controls, Insertable objects, Validation.

6. **ERROR TRAPPING & DEBUGGING**

   Overview chain, Errors in an error – handling routine, Inline error handling, Error – handling styles, General error – trapping options Type of errors, Break mode Debug toolbar, Watch window, Immediate window, Local window, Tracing program flow with the Call Stack.

7. **SEQUENTIAL AND RANDOM FILES:**

   Overview data to file, Basic filing, data analysis and file, the extended text editor, Random access file, The design and coding.

8. **DATA ACCESS USING THE ADO DATA CONTROL**

   Overview of AactiveX data Objects, Visual Basic data access features, Relational database concepts Using the ADO Data control to access data, Overview of DAO, RDO, Data Control, structured query language (SQL), Manipulating data Using Data Form Wizard.

9. **REPORT GENERATION:**

   Overview of Report, Data Report, Add groups, Data Environment, Connection to database Introduction to Crystal Report Generator.

10. **ADVANCES TOOLS:**

    Overview of drag and drop, Mouse events, Drag- and drop basics, Date Time Control, Calendar, Print Dialog, MDI(Multiple Document Interface).

PROGRAMMING IN JAVA

UNIT-1   **INTRIDUCTION:**

Genesis of java, importance to the internet, overview of features.

OOP

OOP features, data types, control structures, arrays, methods, and classes, nested & inner classes, string and String Buffer class, Wrapper Class, vectors.

UNIT-2   **INHERITANCE:**

Basic type, method Override, Using abstract and final classes, using super.

PACKAGES AND INHERITANCES:

Defined CLASSPATH, importing packages, implementing interface.

UNIT-3   **EXCEPTION HANDLING:**

Fundamental: exception types, using try and catch, throwing exceptions, defined exceptions.

MULTITHREADED PROGRAMMING:

Java spread model, creating threads, thread priorities, synchronization. Suspending resuming and stopping threads.

UNIT-4   **INPUT/OUTPUT:**

Basic Streams, Byte and Character Stream, predefined streams, reading and writing from console and file. Using standard Java Packages(lang, util, io)

JDBC:

Setting the JDBC connectivity with backend database.

UNIT-5   **APPLETS:**

Fundamentals, life cycle, overriding update, HTML APPLET tag, passing parameters. Developing single applets.

INTRODUCTION TO AWT

Window fundamentals, creating windowed, programs waking with graphics, using AWT controls, menus, Delegation event model, handling mouse and keyboard events.

ESSENTIALS OF E - COMMERCE

1. **INTRODUCTION TO ELECTRONIC COMMERCE :-** The scope of E-commerce; Size, growth and future projection of E-commerce market Worldwide and in India; Internet and its impact on traditional businesses; Definition of E- commerce; Business models in E-commerce environment; Case studies, Emergence of E-commerce – E-commerce on private networks, Electronic Data Interchange (EDI), What is EDI in action, EDI basics, EDI standards, financial EDI, FEDI for international trade transaction, FEDI payment system within the us, ACH credit transfer payment system FEDI, application of EDI, benefits of EDI, Electronics Payment system, E – commerce on the web, E-commerce in India.

2. **INTERNET, SECURITY AND E- COMMERCE :-** Security of Data/ Information in Internet/web environment; Client security, Network security; Virus protection and Hacking; Security Measure; Authentication, Integrity, Privacy, Non-repudiation; Public information, Private information, firewall tunnels, encryption, secret key encryption, Public key encryption, digital signature Case studies, E- commerce Payment Systems – E-commerce Payment Models: Pure and Hybrid E-commerce Payment Models; Credit Card; Debit Cards; Prepaid Card; Online debit to the accounts; and Alternative Payment Systems employing Electronic Clearing System of Reserve Bank of India. Case Studies.

3. **BUSINESS-TO-BUSNIESS (B2B), BUSINESS-TO-CUNSUMER (B2C);BUSINESS-TO-BUSINESS-TO-CONSUMER (B2B2C)AND CONSUMER (C2C) E-COMMERCE :-** How E-commerce business practice differ from traditional business practices; Inter organizational transaction; Business transaction cycle, different types of transactions in E-commerce environment; Electronic markets, advantages and disadvantages of E-Market, Future of E –Markets; Inter- Organizational E- commerce transactions; Advantages and Disadvantages of Inter – Organizational E- Commerce. Business-to-consumer E-commerce transactions; advantages and disadvantages of B2C E-commerce transaction. Application of E- commerce in India: Internet banking; Online Trading; E- Governance and E- Government etc. Case Studies.

4. **HTML BASIC & WEB SITE DESIGN PRINCIPLES :-** Concept of a Website, Web Standards, What id HTML? HTML Versions, Naming Scheme for HTML Documents, HTML document/file, HTML Editor, Explanation of the Structure of the homepage, Element in HTML Documents, HTML Tags, Basic HTML Tags, Comment tag in HTML, Viewing the Source of a web page, How to download the web page source? XHTML, CSS, Extensible Markup Language (XML), Extensible Style sheet language (XSL), Some tips for designing web pages, HTML Document Structure. HTML Document Structure – Head Section, Illustration of Document Structure, <BASE> Element, <ISINDEX> Element, <LINK> Element, META, <TITLE> Element, <SCRIPT> Element, Practical Applications, HTML Document Structure – Body Section:-Body element and its

attributes: Background; Background color; Text; Link; Active Link (ALINK); Visited Link (VLINK); Left margin; Top margin, Organization of Elements in the BODY of the document; TEXT Block Elements; Text Emphasis Elements; Special Elements – Hypertext Anchors; Character – Level Elements; Character References, Text Block Elements; HR (Horizontal Line); Hn (Headings); P (Paragraph); Lists; ADDRESS; BLOCKQUOTE; TABE DIV (HTML 3.2 and up); PRE (Performatted); FORM, Text Emphasis Elements, Special Elements – Hypertext Anchors, Character -- Level Elements; Line breaks (BR) and Images (IMG), Lists, ADDRESS Element, BLOCKQUOTE Element, TABLE Element, COMMENTS in HTML, CHARACTER Emphasis Modes, Logical & Physical Styles, Netscape, Microsoft and Advanced Standard Elements List FONT, BASEFONT and CENTER.

5. **IMAGE, INTERNAL AND EXTERNAL LINKING BETWEEN WEBPAGES:-** Netscape, Microsoft and Advanced Standard Element List, FONT, BASEFONT and CENTER Insertion of images using the element IMG (Attributes: SRC (Source), WIDTH, HEIGHT, ALT (Alternative), ALIGN), IMG (In-line Images) Element and Attributes; Illustrations of IMG Alignment, Image as Hypertext Anchor, Internal and External Linking between web Pages

Hypertext Anchors, HREF in Anchors, Link to a Particular Place in a Document, NAME attribute in an Anchor, Targeting NAME Anchors, TITLE attribute, Practical IT Application Designing web pages link with each other Designing Frames in HTML. Practical examples.

6. **CREATING BUSINESS WEBSITE WITH DYNAMIC WEB PAGES**

Concepts of statics web pages and dynamic web pages, Introduction to scripting , Types of Scripting languages, Scripting Files, Client Side Scripting with VB/Jscript/JAVAScript, Practical examples of Client side scripting. Identifying Objects & Events, and Creating & Implementing, Web Space allocation, Uploading/ Downloading the website – FTP, cute FTP. Web site Promotion Search Engines, Banner Advertisements.