APPENDIX – AE10

MANONMANIAM SUNDARANAR UNIVERSITY. TIRUNELVELI
DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION
B.C.A.
(Effective from the Academic Year 2016-2017 onwards)

The **aims** of the Programme are:

- To impart theoretical and practical knowledge in various areas of computer applications through Distance Education
- To impart basic computing skills & a selected set of skills that is currently in demand in IT field
- To stimulate interest in humanities and thereby encourage an inter-disciplinary interest

The **objectives** of the Programme are the following: On completion of the Programme, a student should:

- Have sound skills in programming and Networking
- Have sound skills in designing web-based applications
- Have a good command of the English language for professional communication
- Have a variety of soft skills like technical documentation, presentation, quality awareness, team work, global outlook etc
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1. **Qualifications for Admission:**

Candidate should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Education, Government of Tamil Nadu or any other Examinations accepted by the syndicate as equivalent.

For Lateral entry : Any Diploma degree from Government recognized institution are eligible to admit in second year.

2. **Duration of the Course:**

The students shall undergo the prescribed course of study for a period of not less than **three academic years**

Medium of Instruction: English

3. **Computer Facility:**

The Study Center should provide with sufficient number of computers to the students as per the requirements of the syllabus

First Year:

Sl No.	Title of the paper	Credits
1	Introduction to Computers	4
2	Office Automation	4
3	Programming in C	5
4	Web Design using HTML	5
5	**Practical I:** Office Automation and Web Design using HTML	4
6	**Practical II:** Programming in C	4

Second Year:

Sl No.	Title of the paper	Credits
7	**Part I: Language -** Tamil	5
8	**Part II: Language -** English	5
9	Computer Architecture	5
10	Data Structures	5
11	Discrete Mathematics	4
12	Object Oriented programming with C++	5
13	Visual Basic	5
14	**Practical III:** C++	4
15	**Practical IV:** Visual Basic	4

Third Year:

Sl No.	Title of the paper	Credits
16	Computer Networks	5
17	Accountancy	4
18	Operating Systems	5
19	RDBMS and Oracle	5
20	Java Programming	5
21	**Practical V:** Oracle	4
22	**Practical VI:** Java Programming	4
	Total no of Credits	**100**

1. INTRODUCTION TO COMPUTERS

Unit I:

Introduction to Computers: Introduction – Characteristics of Computers – Evolution of Computers - Generation of Computers – Classification of Computers : Based on purpose, Based on type of data handling techniques, and According to Functionality – The Computer System – Application of Computers.

Unit II:

Input Devices: Keyboard – Pointing Devices – Webcam – Scanners – Optical Character Recognition – Optical Mark recognition – Magnetic Ink Character Recognition – Bar Code Reader. Output Devices: Printers – Plotters – Computer Output Microfilm – Monitors – Voice Recognition System – Projectors.

Unit III:

Primary memory: Memory Representation – Memory Hierarchy – Random Access Memory – Read Only memory – Types of ROM.

Secondary Storage: Classification of Secondary Storage Devices – Storage Organization of Magnetic Disk – Storage Organization of Optical Disk – Magneto-Optical Disk – Universal Serial Bus.

Unit IV:
Database Fundamental: Data, Information and Knowledge – Database – Logical Data Concepts – Physical Data Concepts – Database Management System – Need, Benefits of DBMS, Components of DBMS, Database Administrator – DBMS Architecture – Database Models.

Unit V:
Internet Basics: Basic Internet Terms – Internet Addressing – Internet Applications – E-mail, WWW, File Transfer Protocol, Telnet, Internet Relay Chat, Gopher, Chatting, Commerce through Internet, Groups, News, Social Networking, Blog, Videoconference, Online services – E-mail address structure - Sending and Receiving E-mail – Search Engines – Internet and Viruses.

Text Book: Fundamentals of Computers, Dr P.Velmani & Dr V.Lakshmi Praba, 1/e, Chess Educational Publishers, Chennai

Reference Books:

1. Introduction to Computer Science, ITL Education Solutions Limited, 2/e, Pearson
2. Introduction to Computers, Peter Norton, 7/e, TMH.

2. Office Automation

Unit I - Microsoft Word 2010

Introducing the Microsoft Office 2010 User interface – Microsoft Office 2010 features.

New features in Word 2010 – Starting Microsoft Word 2010 – Creating a new blank word document – Applying Basic formatting: - changing the font and font size – applying the Bold, Italic and Underline styles – changing the text color – Allinging the text – Applying Bulleted and Numbered lists – Using Cut, Copy and Paste Commands – Using Find, Replace and Go To Commands – Printing a Word document – Opening an existing word document – Closing a word document – Exiting Microsoft Word.

Unit II

Working with Tables: – Adding a table to a document – Adding Columns and Rows – Merging the Cells in a table – Adding a table Border – Inserting Headers and Footers – Inserting Footnotes and Endnotes – Performing Spelling and Grammar check – Marking a document as Final

Unit III –Microsoft Excel 2010

New features in Excel 2010 – Creating a New Blank Excel Workbook – Saving an Excel Workbook – Adding Data to Cells – Inserting and deletind Cells, Rows, Columns and Worksheet – Renaming a Worksheet – Opening an existing Excel Workbook – Printing a Worksheet – Closing an Excel Worksheet – Exiting Microsoft Excel – Working with Chart – Working with Formula anf Functions.

Unit IV – Microsoft PowerPoint 2010

New features in PowerPoint 2010 – Creating a Blank Presentation – Saving Presentation – Adding and Removing Slides – Opening an Existing Presentation - Closing Presentation – Exiting Microsoft PowerPoint.

Unit V – Microsoft Access

Introduction to tables in Microsoft Access 2010:- creating a table – Saving a table – Working with fields in a table – Entering records in a table –Introducing query types – Creating a Query – Saving a Query.

Reference Books:

1. Kogent Learning Solutions inc., Office 2010 in Simple Steps, Dreamtech Press, Edition 2011. (For Unit I to IV)
2. Kogent Learning Solutions inc., Access 2010 in Simle Steps, Dreamtech Press, Edition 2011. (For Unit V)

3. Programming in C

Unit I

C Declarations:- Introduction – Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant .

Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.

Unit II.

Managing Input and Output Operations:- getchar( ) – putchar( ) – scanf( ) – printf( ).

Decision Making and Branching:- Introduction – Decision Making with IF Statement – Simple IF statement – The IF…Else Statement – Nesting of IF…Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement.

Decision Making and Looping:- Introduction – The WHILE Statement – The DO Statement – The FOR statement – Jumps in Loops.

Unit III.

Arrays :- Introduction – One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays.

Character Arrays and Strings:- Introduction – Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions.

Unit IV.

User-Defined functions:- Introduction – Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – The Scope, Visibility and lifetime of a variables.

Structures and Unions:- Introduction – Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures – Structures and functions – Unions.

Unit V

Pointers:- Introduction – Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions – Pointers as function arguments.

File Management in C:- Introduction – Defining and Opening a file – Closing a File – Input/Output Operations on files – Error Handling During I/O Operating .

Text Book:

Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited.

Reference Book:

Computer Programming in C – V . Rajaraman-PHI

4. WEB DESIGN USING HTML

UNIT I

Introduction:- What is the Internet? – History of the Internet – Internet services and Accessibility – Uses of the Internet – Protocols.

UNIT II

Web concepts:- The Client/Server model of the web – Retrieving Data from the Web – How the web works – Web browsers, Navigation Features – Searching Information on the Web.

UNIT III

Introduction to HTML:-

History of HTML – SGML – DTD – Outline of an HTML Document – Head Section – Proloque – link – Base – Meta – Script – Style – Body Section – Headers – Paragraphs – text formatting.

UNIT IV

Linking – Internet linking – Embedding Images – lists – unordered – ordered – Tables – Frames – other Special tags and characters .

UNIT V

HTML Forms – input – select – Text Area – Dynamic HTML (DHTML).

TEXT BOOK:

Web Technology – N.P. Gopalan & J. Akilandeswari.

Reference Books:

1) World wide web design with HTML - C. Xavier.
   Web design. A complete reference, Pouuell, Tata McGraw Hill

5. Office Automation and Web Design using HTML – Practical List

1. Create a document and apply it in an attractive manner.
2. Create a paragraph including table and apply header and footer options.
3. Prepare a Mark statement in Excel
4. Design an Animated presentation with minimum Three slides.
5. Create a employee table, entering the records in the table and display its content.
6. Write a html program to demonstrate order list.
7. Write a html program to create your Bio-data using forms.

8. Write a html program to display the details of the departments of college using hyperlinks and frames.
9. Write a html program to design your class time table using table.
10. Design a web page using some of the formatting tags.

6. Programming in C – Practical List

1. Fibonacci series
2. To find all possible roots of a quadratic equation.
3. Sort a list of numbers in ascending order
4. Search an element in an array
5. Find the nC_r value using recursion
6. Multiply two matrices (check for compatibility)
7. Alphabetical sorting (passing array as argument to function)
8. Exchange values using pointers and function
9. Prepare electricity bill using file
10. Create a File to store the student details.

II YEAR - 9. Computer Architecture

UNIT- I

Data Representation: Data Types – Complements: (r-1)'s complement, r's complement – Fixed Point Representation – Floating Point Representation – Error detection codes.

Register Transfer and Microoperations: Register Transfer Language – Register Transfer – Bus and Memory Transfers – Arithmetic Microoperations: Binary Adder, Binary Adder-Subtractor – Logic Microoperations – Shift Microoperations – Arithmetic Logic Shift Unit.

UNIT- II

Basic Computer Organization and Design: Instruction Codes – Computer Registers – Computer Instructions - Timing and Control – Instruction Cycle – Input-Output and Interrupt - Design of Basic Computer.

UNIT- III

Central Processing Unit: Major Components of CPU – General Register Organization – Stack Organization – Instruction Format – Addressing modes – Reduced Instruction Set Computer(RISC): CISC Characteristics, RISC Characteristics.

UNIT- IV

Computer Arithmetic: Addition and Subtraction – Multiplication Algorithms – Division Algorithms – Floating point Arithmetic Operations.

UNIT- V

Memory Organization: Memory Hierarchy – Main Memory – Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory.

Reference Books:

Computer System Architecture - M. Morris Mano

10. Data Structures

Unit I

Basic Concepts:- Algorithm specification – Data Abstraction – Performance Analysis.

Arrays and Structures:- Arrays: Abstract data type – Polynomials – Sparse Matrices – Representation of Multidimensional Arrays.

Unit II

Stacks and Queues:- Stacks – Queues – Evaluation of Expressions – Multiple Stacks and Queues.

Linked Lists:- Singly Linked Lists and Chains – Linked Stacks and Queues – Additional List Operations: Operations for Circularly Linked Lists. – Doubly Linked Lists.

Unit III

Trees:- Introduction – Binary Trees – Binary Tree Traversals: Inorder Traversal – Preorder Traversal – Postorder Traversal – Iterative Inorder Traversal. - Threaded Binary Trees – Binary Search Trees – Forests: Transforming a Forest into a Binary Tree.

Unit IV

Graphs: - The Graph Abstract Data Type-Elementary Graph Operations – Minimum Cost Spanning Trees: Kruskal's Algorithm – Prim's Algorithm. – Shortest Paths Single Source / All Destination: General Weights – All Pairs Shortest Paths.

Unit V

Sorting:- Motivation – Insertion Sort – Quick Sort – Merge Sort: Recursive Merge Sort. – Heap Sort .

Hashing:- Static Hashing: Hash Tables.

Text Book:

Fundamentals of Data Structures in C by Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed – Second Edition – Universities Press (India) Private Limited

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Reference Book:

Fundamentals of computer Algorithm - Second Edition – Ellis Horowitz , Sartaj Sahni , Rajasekaran

11. DISCRETE MATHEMATICS

UNIT I

Relations : Introduction to Relation - Binary Relation – Classification of Relations – Composition of Relations – Inverse of a Relations – Representation of Relations on a set – Closure Operation on Relations – Reflexive Closure – Symmetric Closure – Matrix Representation of Relation - Digraphs – Transitive Closure.

UNIT II

Functions : Introduction to Functions – Addition and Multiplication of Functions – Classifications of Functions – Composition of Function – Inverse function.

UNIT III

Mathematical Logic : Introduction – Statement(Propositions) – Basic set of Logical Operators/Operations –Propositions and Truth Tables – Algebra of Propositions – Tautologies and Contradictions – Logical Equivalence – Normal Forms.

UNIT IV

Matrix Algebra : Definition of a Matrix – Types of Matrices – Operations on Matrices – - Addition, Subtraction, Scalar Multiple and Multiplication of Matrices Related Matrices - Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices - Adjoint of a Square Matrix – Inverse of a Matrix.

UNIT V

Graph Theory : Graphs and Basic terminologies – Types of Graphs – Subgraph – Operations on graphs - Representation of Graph – Adjacency Matrix Representation – Incidence Matrix Representation

Reference Book:

DISCRETE MATHEMATICS –Swapan Kumar Chakraborty, Bikash Kanti Sarkar , OXFORD University Press

12. OBJECTED ORIENTED PROGRAMMING WITH C++

UNIT I

Introduction: A Look at procedure oriented programming-Object Oriented Programming Paradigm-Basic concepts of Object Oriented Programming-Benefits of OOP-Application of OOP.

Simple I/O Operation: cin and cout statements.

UNIT II

Classes and Objects: Structure of C++ Program-Specifying a class-Defining member functions-Static data members and static member functions-Object as function arguments-Friendly functions.

UNIT III

Constructors and Destructors: Constructors-Parameterized constructors-Multiple constructors in class-Destructors.

Operator overloading: Defining operator overloading-overloading unary operators-overloading binary operators, overloading binary operators using friends-Rules for operator overloading-Type conversion.

UNIT IV

Inheritance: Defining derived classes-Single Inheritance-Multilevel inheritance-Multiple inheritance.

Pointers: Declaring and initializing pointers-pointers expressions and pointer arithmetic –using pointers with arrays and strings-this pointer-pointers to derived classes.

UNIT V

Virtual functions and Pure Virtual functions.

Working with Files: Introduction-Classes for file stream operators-Opening and Closing a File-checking for eof( ) - File Modes-get () and put () functions- Binary files - read and functions-reading and writing a class object.

Reference Book: Objected Oriented Programming with C++, E.Balagurusamy, 6 edition, McGraw Hill Education (India) Private Limited, New Delhi

13. Visual Basic

Unit I

Introduction to GUI – Fundamentals of Visual Basic – The Visual Basic Integrated Development Environment - Project Explorer – Properties Window – Form designer – Tool box.

Unit II

Variables – Constants – Operators – User defined data types – Converting variable types – programming Constructs:- Displaying output on the form – decision making – looping constructs.

Unit III

Arrays:- Dynamic arrays – static arrays – Array operations – Multidimensional Arrays – Functions and Procedures – Control Arrays

Unit IV

Advanced controls:- List and Combo boxes – Flex Grid – Timer Control – Message Box – Input Box – Common Dialog controls – Menu

Unit V

MDI Form – Handling Data access in VB 6.0 – Dynamic Data Exchange (DDE) – Object Linking and Embedding (OLE).

Reference Book:

1. Visual Basic Programming a step by step Approach, Dr.A.Murugan, Dr. K. Shyamala and Grasha Jacob, Margham Publications ,Reprint 2014.

14. C++ PRACTICAL List

1. Write a C++ program to calculate the roots of a quadratic equation using OOP concept.
2. Write a C++ program to calculate the area of a square, rectangle and triangle using classes, Objects and function overloading.
3. Write a C++ program to implement static class member.
4. Write a C++ program to implement static member function
5. Write a C++ program to add two complex numbers by passing object as a function arguments.

6. Write a C++ program to find the biggest of the number in two different classes using friend function.
7. Write a C++ program to calculate NCR using constructor and destructor.
8. Write a C++ program to implement for overloading binary + operator.
9. Write a C++ program to implement single inheritance (public and private).
10. Write a C++ program to implement for reading and writing a class objects using file.

15. Visual Basic – Practical List

1. Write a Vb program to create two radio buttons centigrate to farenheit conversion and farenheit to centigrate conversion. When click up any one of the two buttons answer should be displayed.
2. Write a Vb program to calculate factorial of a given number.
3. Write a program to check whether the given number is polyndrome or not.
4. Write a VB program to design simple calculator.
5. Write a VB program to create procedures and call these procedures into any event.
6. Write a VB program to illustrate common dialog box
7. Write a VB program to arrange the numbers in ascending and descending orders.
8. Write a VB program to illustrate the menu editor.
9. Write a VB program to display records using grid controls.
10. Write a VB program to illustrate data control.
11.

III YEAR - 16. Computer Networks

UNIT- I

Data Communication: Networks – Protocols and Standards – Standards Organizations.

Basic Concepts: Line Configuration – Topology – Transmission mode – Categories of Networks – Internetworks.

UNIT- II

The OSI Model: The Model – Functions of the layers.

Signals: Analog and Digital – Analog signals – Digital Signals.

Encoding and Modulating: Analog-to-Digital Conversion – Digital-to-Analog Conversion.

UNIT- III

Transmission Media: Guided Media – Unguided Media.

Error Detection and Correction: Types of Errors – Detection – Vertical Redundancy Check(VRC) – Longitudinal Redundancy Check(LRC) – Cyclic Redundancy Check(CRC) – Checksum – Error Correction.

Data Link Control: Line discipline – Flow Control – Error Control.

UNIT- IV

Data Link Protocols: Synchronous Protocols – Character Oriented Protocols – Bit Oriented Protocols.

Switching: Circuit Switching – Packet Switching – Message Switching.

Local Area Networks: Project 802 – Ethernet – Token Bus – Token Ring – FDDI.

UNIT- V

TCP/IP Protocol suite Part I: Overview of TCP/IP – Network layer – Addressing.

TCP/IP Protocol suite Part II: File Transfer Protocol – Telnet – SMTP – HTTP.

Network Security: Four Aspects of Security – Digital signature – PGP – Access Authorization.

Reference Book:

Data Communications and Networking - Behrouz A. Forouzon
2nd edition Tata McGraw Hill edition.

17. ACCOUNTANCY

Unit I:

Introduction to Accounting – meaning – objectives – limitations – Accounting concepts – Accounting convention – double entry system – Rules for debit and credit – journals – Ledgers – subsdiary books – Balancing of accounts.

Unit II:

Trial Balance – Rectification of errors – suspense accounts – Bank Reconciliation Statement – Difference between Cash Book and Pass Book – reasons.

Unit III:

Bills of Exchange – honour and dishonour of a bill – renewal of a bill – retirement of a bill – insolvency of acceptors – Accommodation bills.

Unit IV:

Final Accounts – Trading and Profit and loss Accounts – Balance sheet – adjustment entries – provision for bad and doubtful debts – provision for discount on debtors and creditors.

Unit V:

Accounts on Non-trading organizations – Receipts and payments – Income and Expenditure account – Balance Sheet – Income and Expenditure of profession people

18. OPERATING SYSYTEMS

UNIT I

Introduction: What is operating systems do-Computer System Architecture-Operating System Structure –Operating System Operations-Computing Environments-Open Source Operating Systems.

UNIT II

System Structures: Operating System Services-System Calls-System Programs-Operating System Structures.

Process Management: Process Concept-Process Scheduling-Interprocess communication.

UNIT III

Process Scheduling: Basic Concepts-Scheduling Criteria-Scheduling Algorithms (FCFS, SJF & Round Robin only) - Algorithm Evaluation.

Synchronization: Back ground-The Critical Section Problem-Peterson's Solution-Synchronization Hardware-Mutex Locks-Semaphores-The Dining-Philosopher's Problem.

UNIT IV

Deadlock: Deadlock Characterization-Methods Handling Deadlocks-Recovery from Deadlock.

Memory Management Strategies: Background-Contiguous Memory Allocation-Segmentation-Paging.

UNIT V

Virtual Memory Management: Demand Paging-Page Replacement. File System: Directory and Disk Structure Implementing File-Systems: Allocation Methods Mass Storage Structure: Disk Scheduling.

Text Book: OPERATING SYSTEMS CONCEPTS- Abraham Silberschatz, Peter B Galvin, Gerg Gagne-NINTH EDITION (2015 INDIA EDITION)-WILEY

Reference Book: THE MINIX BOOK OPERATING SYSTEMS DESIGN AND IMPLENTATION-Third Edition-ANDREW S.TANENBAUM and ALBERT S WOODHULL. – PEARSON

19. RDBMS AND ORACLE

UNIT I

DATABASE CONCEPTS:

Database - purpose of Database systems - View of Data - Relational Databases - Database Architecture - the relational Database model - Integrity rules - Relational Algebra.

UNIT II

DATABASE DESIGN:

Data modeling – functional dependency – Database design – Normal forms - Personal databases – Client/ server databases – The SQL*PLUS Environment – SQL*PLUS commands.

UNIT III

Oracle Tables: Naming rules and conventions – Data types – Constraints – Creating Oracle table – Displaying table information – Altering an existing table- Dropping a table – Renaming a table – Truncating a table.

UNIT IV

Working with tables: DML statements – Arithmetic operations – Where clause sorting – DEFINE command – Built in functions – Grouping data

Multiple tables: Joins – Set operators – sub query.

UNIT V

PL/SQL: Fundamentals – Block structure – Comments – Data types – Variable declaration – Anchored declaration – Assignment operation – Bind variables – Substitution Variables – Arithmetic operators- control structures - PL/SQL Cursors & Exceptions.

TEXT BOOK:

1. Database Systems Using Oracle – Second edition – Nilesh Shah – PHI 2007

Reference Books:

1. Database system concepts –Henry F.Korth.
2. Oracle 9i Complete reference – Loney Koch – Tata Mc Graw Hill 2005.

20. JAVA PROGRAMMING

UNIT I

Data Types, Variables , Arrays and Operators: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays- Operators & its types.

Introducing Classes: Class Fundamentals – Declaring Objects – Assigning Object Reference Variables – Introducing Methods – Constructors.

Unit II:

A Closer Look at Methods and Classes: Overloading Methods **–** Using Objects as Parameters – Argument Passing – Returning Objects – Recursion – Introducing Access Control – Understanding static – Introducing final – Using command line arguments.

Inheritance: Inheritance Basics – Using super – Creating Multilevel Hierarchy-Method Overriding-Dynamic Method Dispatch.

Unit III

Packages and Interfaces: Packages – Access Protection – Importing Packages – Interfaces.

Exception Handling: Introduction – Exception Types **–** Using try and catch.

Multithreaded Programming: Java Thread Model – Main Thread – Creating a Thread.

Unit IV

The Applet Class: Applet Basics – Applet Architecture – Applet Skeleton – Applet Display Methods – Requesting Repainting – HTML APPLET tag.

Event Handling: Event Handling Mechanisms – Delegation Event Model – Event Classes – Sources of Events – Event Listener Interfaces – Handling Mouse Events and Keyboard Events.

Unit V

Graphics: Working with Graphics – Working with color – Working with Fonts

Using AWT Controls: Controls Fundamentals – Labels – Using Buttons – Applying Check Boxes – Check Box Group – Using a TextField –Using a Text Area – Understanding Layout Managers – [Flow Layout Only].

TEXT BOOK:

Java2, The Complete Reference 8/e , Herbert Schildt, TMH

REFERENCE BOOKS:

1. Java Programming A Practical Approach, C.Xavier, TMH
2. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press

21. ORACLE – Practical List

1. Create an employee database with tables department, employee details address, pay details and project details. Alter the tables and add constrains relevant to the fields in the tables. Insert records into all the tables.
2. Create a Student Database with three tables and write suitable queries to retrieve relevant information from a table.
3. Create a table from the existing tables. Create views from the tables.
4. Create a Hospital database with three tables and write queries to retrieve information from more than one table. Develop summary queries to retrieve relevant information from the tables.
5. Create a table with abstract data type and query the records.
6. Write a PL/SQL program to print multiplication table.
7. Write a PL/SQL program to check whether a given string is palindrome or not.
8. Write a PL/SQL program to print student details using report.
9. Create a procedure to calculate Electricity Bill.(use cursors)
10. Write a PL/SQL program to find factorial of numbers using function and procedure.

22. JAVA PROGRAMMING - PRACTICAL LIST

1. Define a class called Student with the attributes Name, Reg-Number and Marks Obtained in four subjects(m1,m2,m3,m4).Write a suitable methods to find the total mark obtained by the student and display the details of the student.
2. Write a Java program to find the area of a square, rectangle and triangle by Method overloading.
3. Write a java program to add two complex numbers.[Use passing object as argument and return object].
4. Define a class called Student with data members name, roll number and age.
   Write a suitable constructor and a method output () to display the details.
   Derive another class Student1 from Student with data members height and weight.
   Write a constructor and a method output () to display the details which overrides the super class method output().[Apply method Overriding concept].
5. Write a java program to create a package “Student” which contains the classes Emp and Memp. The data members of Emp are name, emp_id, category and Bpay. Write suitable

constructors and methods to compute net pay of the employee. The class Memp contains the main method.

6. Write a java program to create an interface called Demo, which contains a double type constant, and a method called area () with one double type argument.
   Implement the interface to find the area of a circle.
7. Write a java program to create a thread using Thread class.
8. Create an Applet with Three checkboxes with labels ALTO,SWIFT,RITZ and a TextArea object. The program must display the details of the car while clicking a particular Checkbox.
9. Write a java program to draw Three concentric circles in an Applet with different colors.
10. Write a Java program, which creates a window with a check box
    group with boxes for the colors, Violet, Indigo, Yellow, Orange, Red,
    Blue, and Green. When the button is selected the background colour
    must change accordingly.