ANNA ADARSH COLLEGE FOR WOMEN

Department of Computer Science (Shift-II)
Academic year 2020-21

Name of the subject: PROBLEM SOLVING USING PYTHON

Year/Semester: I/I

Total Hours: 5 / week

OBJECTIVES:

- **Describe the core syntax and semantics of Python programming language.**
- **Discover the need for working with the strings and functions.**
- **Illustrate the process of structuring the data using lists, dictionaries, tuples and sets**
- **Understand the usage of packages and Dictionaries**

Syllabus

UNIT – I Introduction: The essence of computational problem solving – Limits of computational problem solving-Computer algorithms-Computer Hardware-Computer Software-The process of computational problem solving-Python programming language - Literals - Variables and Identifiers - Operators - Expressions and Data types.

UNIT - II Control Structures: Boolean Expressions - Selection Control - If Statement- Indentation in Python- Multi-Way Selection -- Iterative Control-While Statement- Infinite loops- Definite vs. Indefinite Loops- Boolean Flags and Indefinite Loops. Lists: List Structures - Lists in Python - Iterating over lists in Python.

UNIT - III Functions: Program Routines- Defining Functions- More on Functions: Calling Value-Returning FunctionsCalling Non-Value-Returning Functions- Parameter Passing - Keyword Arguments in Python - Default Arguments in Python-Variable Scope.

UNIT - IV Objects and their use: Software Objects - Turtle Graphics – Turtle attributes-Modular Design: Modules - TopDown Design - Python Modules - Text Files: Opening, reading and writing text files - String Processing - Exception Handling.

UNIT - V Dictionaries and Sets: Dictionary type in Python - Set Data type. Object Oriented Programming using Python: Encapsulation - Inheritance – Polymorphism. Recursion: Recursive Functions.

References:

1. **Gary Cornell. Visual Basic 6 from the ground up. TMH – 1999**
2. **G.V.Post,"Data base Management Systems", TMH, 2000.**
3. **Database Systems using oracle – Nilesh Shah, 2nd edition, PHI**

OUTCOMES

- **To Understand the principles of Python and acquire skills in programming in python**
- **To develop the emerging applications of relevant field using Python**
- **Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.**
- **Able to develop simple turtle graphics programs in Python**

Name of the subject: PYTHON PROGRAMMING LAB

Year/Semester: I/I

Total Hours: 4 / week

PRACTICAL - I PYTHON PROGRAMMING LAB I YEAR / I SEM

OBJECTIVES:

To implement the python programming features in practical applications.

To write, test, and debug simple Python programs.

To implement Python programs with conditionals and loops.

Use functions for structuring Python programs

. Represent compound data using Python lists, tuples, dictionaries , turtles, Files and modules.

LIST OF EXERCISES:

1. **Program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.**
2. **Program to calculate total marks, percentage and grade of a student. Marks obtained in each of the five subjects are to be input by user. Assign grades according to the following criteria: Grade A: Percentage >=80 Grade B: Percentage >=70 and =60 and =40 and**
3. **Program, to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user**
4. **Program to display the first n terms of Fibonacci series.**
5. **Program to find factorial of the given number using recursive function.**
6. **Write a Python program to count the number of even and odd numbers from array of N numbers.**
7. **Python function that accepts a string and calculate the number of upper case letters and lower case letters.**
8. **Python program to reverse a given string and check whether the give string is palindrome or not.**
9. **Write a program to find sum of all items in a dictionary.**
10. **Write a Python program to construct the following pattern, using a nested loop**

1
22
333
4444
55555
666666
7777777

88888888
999999999

11. **Read a file content and copy only the contents at odd lines into a new file**
12. **Create a Turtle graphics window with specific size.**
13. **Write a Python program for Towers of Hanoi using recursion**
14. **Create a menu driven Python program with a dictionary for words and their meanings.**
15. **Devise a Python program to implement the Hangman Game.**

OUTCOMES:

- **Understand the numeric or real life application problems and solve them.**
- **Apply a solution clearly and accurately in a program using Python.**
- **Apply the best features available in Python to solve the situational problems**

ALLIED MATHEMATICS I

Credits: 5 **Year: I/ Sem:I**

HOURS:8/WEEK

OBJECTIVES :

- **To introduce basic concepts of Alegbra, Theory of Equations, Matrices, Trigonometry and Calculus**
- **To understand the basic concepts of Alegbra, Theory of Equations, Matrices, Trigonometry and Calculus**
- **To learn basic concepts of Alegbra, Theory of Equations, Matrices, Trigonometry and Calculus**

UNIT I

Algebra And Numerical Methods:

Algebra: Summation of series - simple problems.

Numerical Methods: Operators E, Δ, ∇, difference tables- Newton-Raphson method- Newton's forward and backward interpolation formulae for equal intervals, Lagrange's interpolation formula.

UNIT II

Matrices: Symmetric, Skew-Symmetric, Orthogonal, Hermetian, Skew-Hermetian and Unitary matrices. Eigen values and Eigen-vectors, Cayley-Hamilton theorem (without proof) – verification- Computation of inverse of matrix using Cayley - Hamilton theorem.

UNIT III

Theory Of Equations: Polynomial equations with real coefficients, irrational roots, complex roots, symmetric functions of roots, transformation of equation by increasing or decreasing roots by a constant, reciprocal equation-simple problems.

UNIT IV

Trigonometry: Expansions of $\sin(n\theta)$ and $\cos(n\theta)$ in a series of powers of $\sin\theta$ and $\cos\theta$ - Expansions of $\sin^n\theta$, $\cos^n\theta$, $\tan^n\theta$ in a series of sines, cosines and tangents of

multiples of "θ" - Expansions of sinθ, cosθ and tanθ in a series of powers of "θ" – Hyperbolic and inverse hyperbolic functions

UNIT V

Differential Calculus:Successive differentiation, n^{th} derivatives, Leibnitz theorem (without proof) and applications, Jacobians, Curvature and radius of curvature in Cartesian co-ordinates, maxima and minima of functions of two variables- Simple problems

Content and treatment as in

Allied Mathematics, Volume I and II, by P. Duraipandian and S. Udayabaskaran, S. Chand Publications

Reference:

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1. S. Narayanan and T.K. Manickavasagam Pillai – Ancillary Mathematics, S. Viswanathan Printers, 1986, Chennai.
2. Allied Mathematics by Dr. A. Singaravelu, Meenakshi Agency.

e-Resources:

1. http://www.themathpaage.com

2. http://nptel.ac.in

LEARNIN G OUTCOMES:

- Students gain knowledge about basic concepts of Algebra, Theory of Equations, Matrices, Trigonometry and Calculus.

Name of the subject: COMPUTER ORGANIZATION
Year/Semester: I/II

Total Hours: 5 / week

OBJECTIVES:

- To understand the basic organization of computers and the working of each component and CPU
- To bring the programming features of 8085 Microprocessor and know the features of latest microprocessors.
- To understand the principles of Interfacing I/O devices and Direct Memory accesses

Syllabus

Unit 1: Data representation: Data types – Complements- fixed point and floating point representation other binary codes. Register Transfer and Microoperations: Register transfer language- Register transfer- Bus and Memory transfers – Arithmetic, logic and shift micro operations.

Unit-2: Central processing unit: General register and stack organizations- instruction formats - Addressing modes- Data transfer and manipulation - program control- RISC - Pipelining - Arithmetic and instruction- RISC pipeline - Vector processing and Array processors.

Unit 3: Microprocessor Architecture and its Operations - 8085 MPU - 8085 Instruction Set and Classifications. Programming in 8085: Code conversion - BCD to Binary and Binary to BCD conversions - ASCII to BCD and BCD to ASCII conversions - Binary to ASCII and ASCII to Binary conversions.

Unit-4: Programming in 8085:BCD Arithmetic - BCD addition and Subtraction - Multibyte Addition and Subtraction - Multiplication and Division. Interrupts: The 8085 Interrupt – 8085 Vectored Interrupts

Unit-5 : Direct Memory Access(DMA)and 8257 DMA controller - 8255A Programmable Peripheral Interface. Basic features of Advanced Microprocessors - Pentium - I3 , I5 and I7

OUTCOMES:

- Describe the major components of a computer system and state their function and purpose
- Describe the microstructure of a processor
- Demonstrate the ability to program a microprocessor in assembly language.
- Classify and describe the operation DMA and peripheral Interfaces.

TEXT BOOKS:

1. M.M. Mano, “Computer System architecture”. Pearson, Third Edition, 2007
2. R. S. Gaonkar- "Microprocessor Architecture- Programming and Applications with 8085"- 5th Edition- Penram- 2009.
1. Tripti Dodiya & Zakiya Malek, “Computer Organization and Advanced Microprocessors”, Cengage Learning, 2012.

REFERENCE BOOKS:

- Mathur- “Introduction to Microprocessor”- 3rd Edition- Tata McGraw-Hill-1993.
- P. K. Ghosh and P. R. Sridhar- “0000 to 8085: Introduction to Microprocessors for Engineers and Scientists”- 2nd Edition- PHI- 1995.

- NagoorKani- “Microprocessor (8085) and its Applications”- 2nd Edition- RBA Publications- 2006.
- V. Vijayendran- “Fundamentals of Microprocessors – 8085”- S. Viswanathan Pvt. Ltd.- 2008.

WEB REFERENCES:

- NPTEL & MOOC courses titled Computer organization

- https://nptel.ac.in/courses/106105163/

- https://nptel.ac.in/courses/106103068/

ANNA ADARSH COLLEGE FOR WOMEN

Department of Computer Science (Shift-II)
Academic year 2020-21

Total Hours: 4 / week

Name of the subject: COMPUTER ORGANIZATION LAB
Year/Semester: I/II
OBJECTIVES:

- To understand the programming features and operations of assembly language programs using 8085 microprocessor kit or Simulator

LIST OF EXERCISES:

I : Addition and Subtraction
1. 8 - bit addition
2. 16 - bit addition
3. 8 - bit subtraction
4. BCD subtraction

II :Multiplication and Division
1 . 8 - bit multiplication
2. BCD multiplication
3.8 - bit division

III. Sorting and Searching
1. Searching for an element in an array.
2. Sorting in ascending order.
3. Finding largest and smallest elements from an array
4. Reversing array elements
5. Block move
6. Sorting in descending order

IV: Code Conversion
l. BCD to Hex and Hex to BCD
1. Binary to ASCII and ASCII to binary
1. ASCII to BCD and BCD to ASCII

V. Applications
1. Square of a single byte Hex number
2. Square of a two digit BCD number
3. Square root of a single byte Hex number
4. Square root of a two digit BCD number

OUTCOMES:

- Implement the arithmetic operations in assembly language programming
- Understand the programming logic of 8085 in various aspects

ALLIED MATHEMATICS - II

Year: I **Sem: II**

HOURS:8/WEEK

OBJECTIVES :

- **To introduce basic concepts of Integral Calculus, Differential calculus, Laplace Transform, Vector differentiation, Vector Integration**
- **To understand the basic concepts of Integral Calculus, Differential calculus, Laplace Transform, Vector differentiation, Vector Integration**
- **To learn basic concepts of Integral Calculus, Differential calculus, Laplace Transform, Vector differentiation, Vector Integration**
-

Unit I:

Integral Calculus: Bernoulli's formula – Reduction formulae-$0\int^{2}\sin^{n}x\,dx$, $0\int^{2}\cos^{n}x\,dx$, $0\int^{2}\sin^{m}x\cos^{n}x\,dx$(m,n being positive integers), Fourier series for functions in $(0,2\pi)$

UNIT II

Differential Equations:

Ordinary Differential Equations: second order non- homogeneous differential equations with constant coefficients of the form ay" +by'+ cy = X where X is of the form $e^{\alpha x}\cos\beta x$ andα $e^{\alpha x}\sin\beta x$ -Related problems only.

Partial Differential Equations: Formation, complete integrals and general integrals, four standard types and solving Lagrange's linear equation P p +Q q= R.

UNIT III

Laplace Transforms: Laplace transformations of standard functions and simple properties, inverse Laplace transforms,Application to solution of linear differential equations up to second order- simple problems.

UNIT IV

Vector Differentiation: Introduction, Scalar point functions, Vector point functions, Vector differential operatorGradient,Divergence, Curl, Solenoidal, irrotational, identities.∇

UNIT V

Vector Integration:Line, surface and volume integrals, Gauss, Stoke's and Green's theorems (without proofs). Simple problems on these.

Content and treatment as in

Allied Mathematics, Volume I and II , P. Duraipandian and S. Udayabaskaran, S. Chand Publications.

Reference:-

1. S. Narayanan and T.K. Manickavasagam Pillai – Ancillary Mathematics, S. Viswanathan Printers, 1986, Chennai.

2. Allied Mathematics by Dr. A. Singaravelu, Meenakshi Agency.

e-Resources:

1. **http://www.sosmath.com**
2. **http://www.analyzemath.com/Differential_Equations/applications.html**

LEARNING OUTCOMES:

- Students gain knowledge about basic concepts of Differential Equations, Laplace Transforms, Vector Analysis and Calculus.

Name of the subject : Programming in C++ and Data Structures

Year/Semester: II/III

Total Hours: 5/ week

LEARNING OBJECTIVES:

- To learn the fundamental programming concepts and methodologies which are essential to building good C++ programs.
- To practice the fundamental programming methodologies in the C++ programming language via laboratory experiences.
- To code, document, test, and implement a well-structured, robust computer program using the C++ programming language.
- To write reusable modules (collections of functions).
- To designs and analyzes simple algorithms
- Understands and restates the fundamentals of basic data structures.

Syllabus

Unit I

Introduction to C++; Tokens, Keywords, Identifiers, Variables, Operators, Manipulators, Expressions and Control Structures in C++; Pointers - Functions in C++ - Main Function **-** Function Prototyping - Parameters Passing in Functions - Values Return by Functions - Inline Functions - Friend and Virtual Functions

Unit II

Classes and Objects; Constructors and Destructors; and Operator Overloading and Type Conversions - Type of Constructors - Function overloading- Inheritance : Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance. Pointers- Virtual Functions and Polymorphism; Managing Console I/O operations.

Unit III

Working with Files: Classes for File Stream Operations - Opening and Closing a File - End-of-File Deduction- Updating a File - Error Handling during File Operations - Command-line Arguments. Data Structures: Definition of a Data structure - primitive and composite Data Types - Asymptotic notations, Arrays, Operations on Arrays, Order lists.

Unit IV

Stacks - Applications of Stack - Infix to Postfix Conversion, Recursion, Maze Problems - Queues- Operations on Queues, Queue Applications, Circular Queue. Singly Linked List- Operations - Application - Representation of a Polynomial, Polynomial Addition; Doubly Linked List - Operations, Applications.

Unit V

Trees and Graphs: Binary Trees - Conversion of Forest to Binary Tree - Operations - Tree Traversals; Graph - Definition, Types of Graphs - Hashing Tables and Hashing Functions, Traversal - Shortest Path; Dijkstra's Algorithm.

OUTCOMES:

1. To describe the advantages of a high level language like C++, the programming process, and the compilation process
2. To describe and use software tools in the programming process
3. To apply good programming principles to the design and implementation of C++ programs
4. To design, implement, debug and test programs using the fundamental elements of C++.
5. Develops skills in implementations and applications of data structures.
6. Applies algorithms and data structures in various real-life software problems.

Recommended Text :

i. E. Balagurusamy,1995,Object Oriented Programming with C++, Tata McGraw-Hill Publishing Company Ltd.

Reference Books :

i. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication. ii.. H.Schildt, C++,1998,The Complete Reference-1998-TMH Edition, 1998.

ii.R. Kruse C.L. Tondo and B. Leung ,1997, Data Structures and Program design in C, PHI.
iii.Cangsam,Auguenstein,Tenenbaum,Data Structures using C & C++,PHI
iv.D.Samantha,2005, Classic Data Structures, PHI,New Delhi.

Name of the subject: Practical-III - Data structures Using C++

Year/Semester: II/III

Total Hours: 4/ Week

LEARNING OBJECTIVES:

- To provide the knowledge of basic data structures and their implementations.
- To understand the importance of data structures in the context of writing efficient programs.
- To develop skills to apply appropriate data structures in problem solving.

Course Outline	1. Implement PUSH, POP operation of Stack using Arrays. 2. Implement PUSH, POP operation of Stack using Pointers. 3. Implement add, delete operations of a queue using Arrays 4. Implement add, delete operations of a queue using Pointers 5. Conversion of Infix to Postfix using Stack operation 6. Postfix Expression Evaluation 7. Addition of two polynomials using Arrays and Pointers 8.Creation, Insertion and Deletion in doubly linked list 9. Binary tree traversals (in-order, pre-order and post-order) using linked list 10. Depth First Search and Breadth First Search for Graphs using recursion.

OUTCOMES:

* Learn the basic types for data structure, implementation and application.
* Know the strength and weakness of different data structures.
* Use the appropriate data structure in context of the solution of a given problem.
* Develop programming skills which require to solve given problem

Subject Name : Statistical Methods and their Application - I

Year/Semester: II/III

Total Hours: 9 / week

LEARNING OBJECTIVES :

- **To introduce basic concepts of diagrammatic representations, frequency curves, sampling, measures of location, probability and correlations**
- **To understand the basic concepts of diagrammatic representations, frequency curves, sampling, measures of location, probability and correlations**
- **To analysis the basic concepts of diagrammatic representations, frequency curves, sampling, measures of location, probability and correlations**

SYLLABUS:

UNIT – I

Nature and scope of statistical methods and their limitations - Classification. Tabulation and diagrammatic representation of various types of statistical data Frequency curves and Ogives - Graphical determination of percentiles, quantiles and their uses, Lorenz curve

UNIT – II

Sampling from finite population - Simple random sampling, - Stratified and systematic random sampling procedures Estimation mean and total and their standard errors. Concepts of sampling and non-sampling errors.

UNIT – III

Measures of location - Arithmetic mean, median, mode, Geometric mean **Harmonic mean and their properties - -merits and demerits. Measures of dispersion - Range,** Mean deviation, quartile deviation, standard deviation, coefficient of variation, skewness and kurtosis - and their properties.

Unit - IV

Probability of an event - Finitely additive probability space addition Multiplication theorems – Independence of events - Conditional probability - Bayes' theorem.

UNIT - V

Bivariate frequency table and its uses - scatter diagram – Correlation Regression lines - linear prediction - Rank correlation coefficient Curve fitting by the method of least squares- Partial and multiple correlation coefficients

OUTCOMES :

Upon finishing this course, students will be able to

- Know the uses of statistics in society
- Organize, manage and present data
- Analyze the statistical data graphically using frequency distribution and cumulative frequency distribution.
- Analyze statistical data using measures of central tendency, dispersion and location.
- To understand correlation between continuous variables and association between categorical variables.

REFERENCE TEXTBOOK:

Mode, E.B.: Elements of Statistics - Prentice Hall

Wilks, S.S.: Elementary Statistical Analysis - Oxford and IBH

Snedecor, G.W., & Cochran, W.G.(1967): Statistical Methods, Oxford and IBH

Simpson and Kafka: Basic Statistics

Burr, I.W.: Applied Statistical Methods, Academic Press.

Croxton, F.E. and Cowden, D.J.: Applied General Statistics, Prentice Hall Ostleo, B.: Statistics in Research, Oxford & 1BH.

Name of the subject: Programming in Java

Year/Semester: II/IV

Total Hours: 5/ week

LEARNING OBJECTIVES:

- To develop the students in the concepts of programming in Java
- To understand the concepts in programming skills
- To learn the concepts of Files, Applets and networking.
- To learn how to use exception handling in Java applications.
- To understand how to design GUI components with the Java Swing API.

Syllabus

Unit I

Introduction to Java-Features of Java - Basic Concepts of Object Oriented Programming - Java Tokens - Java Statements- Constants Variables - Data Types - Type Casting - Operators - Expressions - Control Statements: Branching and Looping Statements.

Unit II

Classes, Objects and Methods - Constructors - Methods Overloading - Inheritance - Overriding Methods - Finalizer and Abstract Methods - Visibility Control –Arrays, Strings and Vectors - String Buffer Class - Wrapper Classes.

Unit III

Interfaces - Packages - Finalizer and Abstract Methods - Visibility Control – Arrays - Strings and Vectors - String Buffer Class - Wrapper Classes Creating Packages - Accessing a Package Multithreaded - Programming-Creating Threads - Stopping and Blocking a Thread - Life Cycle of a Thread - Using Thread Methods - Thread Priority - Synchronization - Implementing the Runnable Interface.

Unit IV

Managing Errors and Exceptions - Syntax of Exception Handling Code - Using Finally Statement - Throwing Our Own Exceptions - Applet Programming - Applet Life Cycle - Graphics Programming - Managing Input/Output Files: Concept of Streams- Stream Classes-Byte Stream Classes - Character Stream Classes – Using Streams - Using the File Class :Creation of Files - Random Access Files - Other Stream Classes

Unit V

Network basics – socket programming – proxy servers – TCP/IP – Net Address – URL-Datagrams - Java Utility Classes-Introducing the AWT: Working with Windows, Graphics and Text- AWT - Classes - Working with Frames-Working with Graphics - Working with ColorWorking with Fonts - Using AWT Controls, Layout Managers and Menu

OUTCOMES

- Students will know the concepts of programming in Java
- It helps to develop Projects using Java
- Effectively the students will understand concepts of Java

Recommended Text :

i.E. Balagurusamy,2004,Programming with JAVA, 2nd Edition,Tata McGraw-Hill Publishing Co.Ltd.

ii.Herbert Schildt,2005,The Complete Reference JavaTM2, 5thEdition,Tata McGraw-Hill Publishing Co. Ltd.

Reference Books :

i. Y. Daniel Liang ,2003, An Introduction to JAVA Programming, Prentice-Hall of India Pvt. Ltd. ii. Cay S. Horstmann and Gary Cornell,2005, Core JavaTM2 Volume I-Fundamentals, 7th Edition- Pearson Education.

iii. Ken Arnold, James Gosling and David Holmes,2003, The JavaTM Programming Language, 3 rd Edition, Pearson Education.

Name of the subject: Practical –IV- Java Programming Lab

Total Hours: 4/ Week **Year/Semester: II/IV**

LEARNING OBJECTIVES:

- To learn how to implement object-oriented designs with Java.
- To identify Java language components and how they work together in applications.
- To design and program stand-alone Java applications.
- To learn how to design a graphical user interface (GUI) with Java Swing.
- To understand how to use Java APIs for program development.
- To learn how to extend Java classes with inheritance and dynamic binding.

Course Outline	**APPLICATIONS** 1. Substring Removal from a String. Use String Buffer Class. 2. Determining the Perimeter and Area of a Triangle. Use Stream Class. 3. Determining the Order of Numbers Generated randomly using Random Class. 4. Usage of Calendar Class and Manipulation. 5. Implementation of Point Class for Image Manipulation. 6. String Manipulation Using Char Array. 7. Database Creation for Storing E-mail Addresses and Manipulation. 8. Usage of Vector Classes. 9. Interfaces and Packages 10. Implementing Thread based Applications and Exception Handling. 11. Application using Synchronization such as Thread based, Class based and Synchronized Statements. 12. Textfiles (copy, display, counting characters, words and lines) 13. Data file creating and processing for electricity billing. 14. Data file creating and processing for telephone billing. **APPLETS**

	15. Working with Frames and Various Controls. 16. Working with Dialog Box and Menus. 17. Working with Colors and Fonts. 18. Drawing various shapes using Graphical statements. 19. Working with panel and all types of Layout. 20. Design a simple calculator with minimal of 10 operations 21. Usage of buttons, labels, text components in suitable application 22. Usage of Radio buttons, check box ,choice list in suitable

OUTCOMES:

- Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
- Read and make elementary modifications to Java programs that solve real-world problems.
- Validate input in a Java program.
- Identify and fix defects and common security issues in code.

Subject Name : Statistical Methods and their Application – 1I

LEARNING OBJECTIVES :

- To introduce basic concepts of random variable, standard distributions, sampling distributions, Principle of scientific experiments and Non parametric tests
- To analysis the basic concepts of random variable, standard distributions, sampling distributions, Principle of scientific experiments and Non parametric tests
- To understand the basic concepts of random variable, standard distributions, sampling distributions, Principle of scientific experiments and Non parametric tests

SYLLABUS :

UNIT I

Concepts of random variable - Mathematical expectation - Moments of random variable (raw and central moments) - Moment generating function - Chebycheff's inequality - simple problems

UNIT II

Standard distributions - Binomial, Poisson –and Normal distributions-Fitting of distributions

UNIT III

Concept of sampling distributions - standard error - Tests of significance based on t, Chi-square arid F - distributions with respect to mean, variance and correlation coefficient. Theory of attributes and tests of independence in contingency table.

UNIT IV

Principle of scientific experiments - Randomization, replication, and local control Analysis of variance - One way and two way classification Analysis of CRD and RBD - Latin square designs. Concepts of factorial experiments (without confounding).

UNIT V

Non parametric tests- Comparison between parametric and Non-parametric tests- Sign test- Runs test for one and two sample problems- Wilcoxon signed Rank test- Mann Whitney U test.

Learning Outcomes: Upon finishing this course, students will be able to

- Know the uses of statistics in Concepts of random variable
- Analyze the statistical data Standard distributions and Concept of sampling distributions
- Analyze statistical data using Principle of scientific experiments
- To understand Comparison between parametric and Non-parametric tests

Books for Study and References:

Mode, E.B.: Elements of Statistics - Prentice Hall

Wilks, S.S.: Elementary Statistical Analysis -Oxford and IBH Snedecor,

G.W., & Cochran, W.G.: Statistical Methods,

Oxford and IBH Simpson and Kafka: Basic Statistics Burr,

I.W.: Applied Statistical Methods,

Academic Press. Croxton, FE. and Cowden, D.J.: Applied General Statistics,

Prentice Hall Ostleo,

B.: Statistics in Research,

Oxford & IBH. Sydney Siegel- Non-parametric Methods for Behavioural Sciences. Daniel,

W W- Biostatistics.

Subject Name : Statistical Methods and their Application Practicals

OBJECTIVES

- To introduce basic concepts of diagrammatic representations, frequency curves, sampling, measures of location, probability and correlations
- To understand the basic concepts of diagrammatic representations, frequency curves, **1.**sampling, measures of location, probability and correlations
- To analysis the basic concepts of diagrammatic representations, frequency curves, sampling, measures of location, probability and correlations

SYLLABUS :

1. Construction of univariate and bivariate frequency distributions with samples of size not exceeding 200

2. Diagrammatic and graphical representation of data and frequency distributions

3. Cumulative frequency distributions - Ogives- lorenz curve

4 Measures of locations and dispersions(absolute and relative) skewness and kurtosis

5. Numerical problem involving derivation of marginal and conditional distributions and related measures of moments

6. Fitting of binomial, poisson and normal distribution and test goodness of fit

7. Curve fitting by the methods of least square

8. Computation of correlation coefficients and regression lines for raw and group data. Rank correlation coefficient

9.Asymptotic and exact tests of significance with regards to populations mens , proportions variance and coefficient of correlations

10. Test of independence of attributes based on contingency table

11. Confidence interval based on normal, t and Chi - square statistics

OUTCOMES :

- Upon finishing this course, students will be able to

- Know the uses of statistics in society
- Organize, manage and present data
- Analyze the statistical data graphically using frequency distribution and cumulative frequency distribution.
- Analyze statistical data using measures of central tendency, dispersion and location.
- To understand correlation between continuous variables and association between categorical variables.

Name of the subject: Operating System
Year/Semester: III/V
Total Hours: 6/ week

LEARNING OBJECTIVES:

- Students will learn how Operating Systems are Important for Computer Systems.
- To make aware of different types of Operating System and their services.
- To learn different process scheduling algorithms and synchronization techniques to achieve better performance of a computer system.
- To know virtual memory concepts.
- To learn secondary memory management.

SYLLABUS :

Unit I

Introduction: Views –Goals –Types of system – OS Structure – Components – Services - System Structures – Layered Approach -Virtual Machines - System Design and Implementation. Process Management: Process - Process Scheduling – Cooperating Process –Threads - Interprocess Communication. CPU Scheduling : CPU Schedulers – Scheduling criteria – Scheduling Algorithms.

Unit II

Process Synchronization: Critical-Section problem - Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Critical Region – Monitors. Deadlock : Characterization – Methods for handling Deadlocks – Prevention, Avoidance, and Detection of Deadlock - Recovery from deadlock.

Unit III

Memory Management : Address Binding – Dynamic Loading and Linking – Overlays – Logical and Physical Address Space - Contiguous Allocation – Internal & External Fragmentation . Non Contiguous Allocation:Paging and Segmentation schemes – Implementation – Hardware Protection – Sharing - Fragmentation.

Unit IV

VirtualMemory :: Demand Paging – Page Replacement - Page Replacement Algorithms – Thrashing. – File System: Concepts – Access methods – Directory Structure –Protection Consistency Semantics – File System Structures – Allocation methods – Free Space Management.

Unit V

I/O Systems: Overview - I/O Hardware – Application I/O Interface – Kernel I/O subsystem – Transforming I/O Requests to Hardware Operations – Performance. Secondary Storage Structures : Protection – Goals- Domain Access matrix – The security problem – Authentication – Threats – Threat Monitoring – Encryption.

LEARNING OUTCOMES:

- Understands the different services provided by the Operating System at different levels.
- They learn real life applications of Operating Systems in every field.
- Understands the use of different process scheduling algorithms and synchronization techniques to avoid deadlock.
- They will learn different memory management techniques like paging, segmentation and demand paging etc.

Recommended Texts

1. Silberschatz, Galvin and Gagne, Operating System Principles, 7th Ed. Addison Wesley.
2. Gary Nutt, Operating Systems, 3rd Ed. Pearson Education, India
3. W. Stalling, Operating Systems, Macmillan.
4. H. M. Dietel, Operating Systems, Addison Wesley Longman.

Name of the subject: Database Management Systems
Year/Semester: III/V
Total Hours: 6 / week

LEARNING OBJECTIVES:

- To develop the students' in the concepts of Database management systems
- To understand the concept of Tables
- Imbibe the concepts of relationships and queries
- To learn the concepts database applications

SYLLABUS :

Unit I

Advantages and Components of a Database Management Systems – Feasibility Study – Class Diagrams – Data Types – Events – Normal Forms – Integrity – Converting Class Diagrams to Normalized Tables – Data Dictionary

Unit II

Query Basics – Computation Using Queries – Subtotals and GROUP BY Command – Queries with Multiple Tables – Subqueries – Joins – DDL & DML – Testing Queries

Unit III

Effective Design of Forms and Reports – Form Layout – Creating Forms – Graphical Objects – Reports – Procedural Languages – Data on Forms – Programs to Retrieve and Save Data – Error Handling.

Unit IV

Power of Application Structure – User Interface Features – Transaction – Forms Events – Custom Reports – Distributing Application – Table Operations – Data Storage Methods – Storing Data Columns – Data Clustering and Partitioning.

Unit V

Database Administration – Development Stages – Application Types – Backup and Recovery – Security and Privacy – Distributed Databases – Client/Server Databases – Web as a Client/Server System – Objects – Object Oriented Databases – Integrated Applications.

LEARNING OUTCOMES

- Students will know the concepts database management systems
- With the concepts of Front end and Back end Programming students can develop Projects
- Effectively the students will understand the real time database concepts

Recommended Texts

1. G. V. Post – Database Management Systems Designing and Building Business Application – McGraw Hill International edition – 1999.

Reference Books

1.RaghuRamakrishnan – Database Management Systems – WCB/McGraw Hill – 1998.
2.C.J. Date – An Introduction to Database Systems – 7 th Edition – Addison Wesley – 2000

Name of the subject: Computer Organization and Architecture
Year/Semester: III/V
Total Hours: 6/ week

LEARNING OBJECTIVES:

- To understand the structure, function and characteristics of computer systems.
- To understand the design of the various functional units and components of computers.
- To identify the elements of modern instructions sets and their impact on processor design.
- To explain the function of each element of a memory hierarchy
- To identify and compare different methods for computer I/O

SYLLABUS :

Unit I

Computer Evolution: Pentium and Power PC Evolution. Computer System: Components – Function – Interconnection Structures – Bus Interconnection – Basics of PCI Bus. Memory: Characteristics – Hierarchy – Cache Memory – Principles – Cache Design – Locality of Reference.

Unit II

Main Memory: Static RAM – Dynamic RAM – Types of ROM – Memory Chip Organization – Types of DRAM. External Memory: Magnetic Disk – Basics of RAID – Optical Memory – Magnetic Tapes

Unit III

Input/Output: External Devices – I/O Module – Programmed I/O – Interrupt Driven I/O – DMA – I/O Channels & Processors. Computer Arithmetic: ALU – Integer Representation and Arithmetic – Floating Point Representation and Arithmetic. Instruction Set: Characteristics – Operand Types – Operation Types – Addressing Modes – Instruction Formats – Pentium and Power PC Operands, Operations, Addressing Modes (Simple Examples).

Unit IV

CPU: Organization of Processors and Registers – Instruction Cycle – Instruction Pipelining – Pentium Processor. RISC: Characteristics – Large Register File – Register Optimization – Architecture – RISC Vs CISC Characteristics – Pipelining.

Unit V

Control Unit: Micro-Operations – Control of Processors – Hardwired Implementation - Micro Programmed Control Concepts – Microinstruction Sequencing – General Microinstruction Execution.

LEARNING OUTCOMES

- Demonstrate computer architecture concepts related to design of modern processors, memories and I/Os.
- Analyze the performance of commercially available computers.
- To develop logic for assembly language programming

Recommended Texts

1. W. Stallings ,2003,Computer Organization and Architecture, 6th Edition PHI,New Delhi.

Reference Books

1. C. Hamacher, Z. Vranesic, S.Zaky, 2002, Computer Organization,5thEdition,Mcgraw Hill.

Name of the subject: Visual Programming
Year/Semester: III/V
Total Hours: 6/ week

LEARNING OBJECTIVES:

- To inculcate knowledge on Visual Basic concepts andProgramming

SYLLABUS :

Unit I

Customizing a Form - Writing Simple Programs - Toolbox - Creating Controls – Name Property - Command Button - Access Keys - Image Controls - Text Boxes - Labels -Message Boxes - Grid - Editing Tools - Variables - Data Types - String - Numbers.

Unit II

Displaying Information - Determinate Loops - Indeterminate Loops - Conditionals -Built-in Functions - Functions and Procedures.

Unit III

Lists - Arrays - Sorting and Searching - Records - Control Arrays - Combo Boxes - Grid Control - Projects with Multiple forms - DoEvents and Sub Main -Error Trapping.

Unit IV

VB Objects - Dialog Boxes - Common Controls - Menus - MDI Forms - Testing, Debugging and Optimization - Working with Graphics.

Unit V

Monitoring Mouse activity - File Handling - File System Controls - File SystemObjects - COM/OLE - automation - DLL Servers - OLE Drag and Drop.

LEARNING OUTCOMES

- Students will develop Visual Programming ability
- With the concepts of front end and back end programming students can develop projects effectively

Recommended Texts

1. Gary Cornell - Visual Basic 6 from the Ground up - Tata McGraw Hill 1999. Noel Jerke – Visual Basic 6 (The Complete Reference) - Tata McGraw Hill – 1999

Name of the subject: RDBMS Lab
Year/Semester: III/V
Total Hours: 6/ week

LEARNING OBJECTIVES:

- This course train the students to implement the database applications

SYLLABUS :

Create database and performing the operations given below using a Menu Driven program: Insertion, (b)Deletion, (c)Modification, (d)Generating a reports (Simple) for the following Systems using any RDBMS package :

- Payroll
- Mark sheet Processing
- Savings bank account for bankingInventory System
- Invoice system
- Library information system
- Student information system
- Income tax processing system
- Electricity bill preparation system
- Telephone directory maintenance.

LEARNING OUTCOMES

- Students get practical knowledge on designing and creating relational databasesystems.
- Understand various advanced queries execution such as relational constraints, joins, set operations, aggregate functions, trigger, views and embedded SQL.
- Students will be able to design and implement database applications on their own

Recommended Texts

1. Gary Cornell - Visual Basic 6 from the Ground up - Tata McGraw Hill -1999. Noel Jerke - Visual Basic 6 (The Complete Reference) - Tata McGraw Hill – 1999

Name of the subject: Data Communication and Networking
Year/Semester: III/VI
Total Hours: 6/ week

LEARNING OBJECTIVES:

- This course introduces the details about basic concepts of data communication and networking
- To understand the layers of the ISO OSI model
- To differentiate the OSI an TCP/IP model
- To learn the History of Analog and Digital Networks
- To illustrate the various connecting and Interconnecting devices

SYLLABUS :

Unit I

Introduction to Data Communication, Network, Protocols & standards and standards organizations - Line Configuration - Topology - Transmission mode - Classification of Network - OSI Model - Layers of OSI Model.

Unit II

Parallel and Serial Transmission - DTE/DCE/such as EIA-449, EIA-530, EIA-202 and x.21 interface - Interface standards - Modems - Guided Media - Unguided Media - Performance - Types of Error - Error Detection - Error Corrections.

Unit III

Multiplexing - Types of Multiplexing - Multiplexing Application - Telephone system - Project 802 - Ethernet - Token Bus - Token Ring - FDDI - IEEE 802.6 - SMDS - Circuit Switching - Packet Switching - Message switching - Connection Oriented and Connectionless services.

Unit IV

History of Analog and Digital Network - Access to ISDN - ISDN Layers - Broadband ISDN - X.25 Layers - Packet Layer Protocol - ATM - ATM Topology - ATM Protocol.

Unit V

Repeaters - Bridges - Routers - Gateway - Routing algorithms - TCP/IP Network, Transport and Application Layers of TCP/IP - World Wide Web.

LEARNING OUTCOMES:

- Students will be able to understand the fundamentals of Data Commuication and how it works.
- The ISO model of networking and its layers will become clear
- History of Digital and Analog networks, and the various protocols will help them understand the development of Networking
- Idea of Connecting devices and Inter connecting devices like routers and so on are learnt and students will gain knowledge on the way networking is done

Recommended Text :

1. Behrouz and Forouzan,2001,Introduction to Data Communication and Networking, 2nd Edition,TMH.

Reference Books :

1. Jean Walrand 1998,Communication Networks (A first Course),Second Edition, WCB/McGraw Hill.
2. Behrouz and Forouzan,2006,Data Communication and Networking,3nd Edition ,TMH.

Name of the subject: Web Technology
Year/Semester: III/VI
Total Hours: 6/ week

LEARNING OBJECTIVES:

- This course introduces the concepts of ASP, VB Script , Java Script.

SYLLABUS :

Unit I

Introduction to` VBScript - Adding VBScript Code to an HTML Page - VB Script Basics - VBScript Data Types - VBScript Variables - VBScript Constants - VBScript Operators – mathematical-comparison- logical - Using Conditional Statements - Looping Through Code - VBScript Procedures – type casting variables - math functions –date functions – string functions –other functions - VBScript Coding Conventions - Dictionary Object in VBScript - Err Object.

Unit II

Introduction to Javascript – Advantages of Javascript – Javascript syntax - Data type –Variable - Array – Operator & Expression – Looping – control structures - Constructor Function – user defined function Dialog Box .

Unit III

Javascript document object model – Introduction – Object in HTML – Event Handling – Window object – Document object –Browser object – Form object – Navigator object – Screen object – Build in object – User defined object – Cookies.

Unit IV

ASP.NET Language Structure – Page Structure – Page event , Properties & Compiler Directives . HTML server controls – Anchor, Tables, Forms, Files . Basic Web server Controls – Lable, Text box, Button, Image Links, Check & radio Button, Hyperlink, Data List Web Server Controls – Check box list. Radio button list, Drop down list, List box, Data grid, Repeater.

Unit V

Request and Response Objects, Cookies, Working with Data – OLEDB connection class, command class, transaction class, data adaptor class, data set class. Advanced issues – email, Application issues,working with IIS and page Directives, error handling. Security – Authentication, IP Address, Secure by SSL & Client Certificates.

LEARNING OUTCOMES:

- Choose, understand, and analyze any suitable real time web application.
- Integrate java and server side scripting languages to develop web applications.
- To develop and deploy real time web applications in web servers and in the cloud.
- Extend this knowledge to .Net platforms.

Recommended Text :

1. I.Bayross, 2000, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications.
2. A.Russell Jones, Mastering Active Server Pages 3, BPB Publications.

Reference Books :

1. HathleenKalata, Internet Programming with VBScript and JavaScript, Thomson Learning
2. Mike McGrath, XML Harness the Power of XML in easy steps, Dreamtech Publications
3. T.A. Powell, 2002,Complete Reference HTML , TMH.
4. J.Jaworski, 1999, Mastering Javascript, BPB Publications.
5. Powell, Thomas; Schneider, Fritz, JavaScript: The Complete Reference, 2nd edition2004, TMH

Name of the subject: Web Technology Lab
Year/Semester: III/VI
Total Hours: 6/ week

LEARNING OBJECTIVES:

- This course gives training in web design and applications.

SYLLABUS :

VB SCRIPT & JAVASCRIPT

1. Write a program outputs the squares, roots, cubes and complements of integers between 1 and 100.
2. Create a calculator.
3. Write a script to Sort numbers and strings
4. Create a program to generate a hit counter
5. Create a program to verify whether email address provided by user is valid or invalid.
6. Write a program to scroll the text on status bar.
7. The form consists of two multiple choice list and one single choice list
    a. the first multiple choice list display the major dishes available.
    b. the second Multiple choice list display the stocks available.
    c. The single choice list display the miscellaneous (Milkshakes, soft drinks, softy available etc.)
8. Write a sript to create a digital clock.
9. Create a web page using two image file which switch black and white one another as the mouse pointer moves over the image. Use the On Mouse over and On Mouse event, onDblclick handler
10. Build a WWW page with an image and 3 buttons., Pick three favorite graphics, Label the buttons and make each one swap in the graphic you have chosen
11. Create a frameset that has two frames, side by side.
    1. Make the left-hand frame contain a form with 3 radio buttons
    2. The buttons should be for three search engines:
        a. Yahoo (http://www.yahoo.com)
        b. Altavista (http://www.altavista.com)
        c. Infoseek (http://www.infoseek.com)
    3. When the user clicks on of the option buttons, the frame on the right hand side should be loaded with the right search engine.
12. Write a program to implement Employee database with all validation

ASP

1. Create a login form, to expire, if the user does not type the password within 100 seconds
2. Create an employee database and manipulate the records using command object in ASP
3. Develop an application to illustrate the usage of Request and Response Objects in ASP.
4. Write an ASP program using Request Object to give the exact list of headers sent by the browser to the Web server.
5. Create an Active Server Page to display the records one by one from a student database. The student database should contain roll no, name, marks & total.
7. Design an ASP application that describes books in the Online Bookshop.(Use AD Rotator Component, Content Rotator Component, Content Linking Component)
8. Create a document and add a link to it. When the user moves the mouse over the link it should load the linked document on its own (User is not required to click on the link).
9. Create a document, which opens a new window without a toolbar, address bar, or a status bar that unloads itself after one minute.

10. Create a document that accepts the user's name in a text field form and displays the same the next time when the user visits the site informing him that he has accessed the site for the second time, and so on.

LEARNING OUTCOMES:

- Debug, test and deploy web applications in different web servers.
- Migrate the web applications to the other platforms like .Net

Recommended Text :

1. I.Bayross, 2000, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications.
2. A.Russell Jones, Mastering Active Server Pages 3, BPB Publications.

Name of the subject: Data Mining
Year/Semester: III/VI
Total Hours: 6/ week

LEARNING OBJECTIVES:

- Understand the concepts of Data Ware housing and Data Mining Concepts.
- Explain the methodologies used for analysis of data
- Describe various techniques which enhance the data modeling.
- Discuss and Compare various approaches with other techniques in data mining and data ware housing

SYLLABUS :

Unit I

Introduction: Data mining – Functionalities - Classification – Introduction to Data Warehousing – Data Preprocessing : Preprocessing the Data – Data cleaning – Data Integration and Transformation – Data Reduction.

Unit II

Data Mining, Primitives, Languages and System Architecture : Data Mining– Primitives– Data MiningQuery Language. Architectures of Data mining Systems. Concept Description, Characterization and Comparison: Concept Description, Data Generalization and Summarization, Analytical Characterization, Mining Class Comparison – Statistical Measures

Unit III

MiningAssociation Rules: Basics Concepts – Single Dimensional Boolean Association Rules From Transaction Databases, Multilevel Association Rules from transaction databases – Multidimension Association Rules from Relational Database and Data Warehouses.

Unit IV

Classification and Prediction: Introduction – Issues – Decision Tree Induction – Bayesian Classification – Classification of Back Propagation. Classification based on Concepts from Association Rule Mining - Other Methods. Prediction – Introduction – Classifier Accuracy.

Unit V

Cluster Analysis: Introduction – Types of Data in Cluster Analysis, Petitioning Methods – Hierarchical Methods Density Based Methods – GRID Based Method – Model based Clustering Method.

LEARNING OUTCOMES:

- Understand the functionality of the various data mining and data warehousing component
- Appreciate the strengths and limitations of various data mining and data warehousing models
- Explain the analyzing techniques of various data
- Describe different methodologies used in data mining and data ware housing.
- Compare different approaches of data ware housing and data mining with various technologies.

Recommended Text :

1. J.Han and M. Kamber,2001,Data Mining Concepts and Techniques, Harcourt India Pvt. Ltd - New Delhi.

Reference Books :

1. K.P. Soman , ShyamDiwakar, V.Ajay ,2006, Insight into Data Mining Theory and Practice, Prentice Hall of India Pvt. Ltd - New Delhi.

Name of the subject: Software Engineering
Year/Semester: III/VI
Total Hours: 6/ week

LEARNING OBJECTIVES:

- To develop the students' in the concepts of Software engineering
- To understand the concepts in programming skills
- To learn the concepts of Files, Applets and networking.

SYLLABUS :

Unit I

Introduction to Software Engineering some definition, some size factors, quality and productivity factors, managerial issues- planning a software project- defining the problem- developing a solution strategy- planning the developing process- planning an organization structure, other planning activities

Unit II

Software cost estimation- cost factors, software cost estimation techniques- staffing- level estimation- estimating software maintenance costs- the software requirement specifications- formal specification techniques- language and processors for requirement specification.

Unit III

Software Design - Fundamental Design concepts- Modules and Modularization criteria, Design Notations - Design Techniques - Detailed Design Considerations - Real-Time and Distributed System Design - Test Plans - Milestones, walkthroughs, and Inspections.

Unit IV

Implementation issues : Structured-CodingTechniques - Coding Style - Standard and Guidelines - documentation guidelines - Type Checking-Scoping Rules -Concurrency Mechanisms.

Unit V

Quality assurance - walkthrough and inspection - Static Analysis - symbolic exception - Unit testing and Debugging System testing Formal verification : Enhancing maintainability during development - Managerial aspects of software maintenance - Configuration management - source code metrics other maintenance tools and techniques.

LEARNING OUTCOMES

- Students will know the concepts of software engineering principles and techniques.
- To manage time, processes and resources effectively by prioritising competing demands
- To achieve personal and team goals Identify and analyze the common threats in each domain.
- Ability to understand and meet ethical standards and legal responsibilities

Recommended Text :

1. Richard E. Fairly - Software Engineering Concepts - Tata McGraw-Hill book Company.

Reference Books :

1. Roger S. Pressman, “Software Engineering - A Practitioner’s Approach”, McGraw Hill 2010, 7th Edition.
2. Pankaj Jalote, “An Integrated Approach to Software Engineering”, Narosa Publishing House 2011, 3rd Edition.

ANNA ADARSH COLLEGE FOR WOMEN
Department of Computer Science (Shift-II)
Academic year 2020-21

NAME OF THE SOFT SKILLS:COMPUTING SKILLS – LEVEL - I
Year/Semester: II\IV

Total Hours: 2/ week

Objective: The major objective in introducing the course is to impart hands on training to students in Microsoft Office essentials like MS Word, MS Excel and MS Access. The course is basic course offered at two levels exclusively meant for students who have no computer knowledge. Course is designed as a practical oriented course and not for chalk and board teaching.

Unit 1 :

Introduction to computers – classification of computers; Computers inside – Hardware(processing, memory i/o, storage etc), Software (Systems, application); Operating Systems – DOS, LINUX, UNIX, Windows ; Programming – Overview, need and skills; Networking Basics; Virus; Hacking

Unit 2 :

Word processing - Operating of word documents like open, close, save, print ; Editing Text – tools, formatting , bullets, layout ; Navigating word – Keyword, mouse, document formatting ; paragraph alignment - indentation, headers, footers, numbering; printing – preview, options

Unit 3 :

File Management – Importance of file management, backing of files, files and folders- editing, deleting, retrieving, renaming, subfolders; Manipulating windows – minimize, mazimize; power point basics- terminology- templates, viewing

Unit 4 :

Spreadsheets – MS Excel – opening, entering text and data, formatting, navigating; Formulas- entering, handling and copying; charts- creating, formatting and printing, header and footer, centering of data; printing

Unit 5 :

Networking - Internet explorer; www – working, browsing, searching, saving; bookmark – features, favorite, create, delete ; printing webpage; email – creating, receiving, reading and sending messages

Note – Unit 2 -5 are to be taught as practical with hands on experience

References : 1. Introduction to Computers – Peter Norton, Tata McGraw-Hill, India
2. Microsoft 2003 – Jennifer Ackerman Kettel et al., Tata Mc-Graw Hill, India
3. Working In Microsoft office 2006– Ron Mansfield , Tata Mc-Graw Hill, India

Examinations : 1. Sessional tests could be based on Theory and practical
2. End semester is based on practical examination only

OUTCOMES

- Describes the fundamentals and classification of computers
- Explain the working of internet
- Outlines and silent features of word processing
- Discuss the main features and application of
- Spread Sheet emphasizing Microsoft Excel
- Describe the features of power point presentation

ANNA ADARSH COLLEGE FOR WOMEN
CHENNAI - 40.

DEPARTMENT OF B.COM COMPUTER APPLICATIONS (SHIFT –II)

Academic Year – 2020 – 2021

Name of the Subject: Office Automation Lab
Year/Semester: I/I

Total Hours: 5 / week

OBEJCTIVES:

- **The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like MS Word, MS Excel and Power point.**
- **The course is highly practice oriented rather than regular class room teaching.**
- **To acquire knowledge on editor, spread sheet and presentation software.**

SYLLABUS

UNIT – I

Introductory concepts: Memory unit – CPU-Input Devices: Key board, Mouse and Scanner. Output devices: Monitor, Printer. Introduction to Operating systems & its features: DOS – UNIX – Windows. Introduction to Programming Languages.

UNIT – II

Word Processing: Open, Save and close word document; Editing text – tools, formatting, bullets; Spell Checker - Document formatting – Paragraph alignment, indentation, headers and footers, numbering; printing – Preview, options, merge.

UNIT – III

Spreadsheets: Excel – opening, entering text and data, formatting, navigating; Formulas – entering, handling and copying; Charts – creating, formatting and printing,analysis tables, preparation of financial statements, introduction to data analytics.

UNIT – IV

Database Concepts: The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records. Designing queries, and reports; Linking

of data files; Understanding Programming environment in DBMS; Developing menu drive applications in query language (MS – Access).

UNIT – V

Power point: Introduction to Power point - Features – Understanding slide typesating & viewing slides – creating slide shows. Applying special object – including objects & pictures – Slide transition – Animation effects, audio inclusion, timers.

OUTCOMES:

- **Understand the basics of computer systems and its components.**
- **Understand and apply the basic concepts of a word processing package.**
- **Understand and apply the basic concepts of electronic spreadsheet software.**
- **Understand and apply the basic concepts of database management system.**
- **Understand and create a presentation using PowerPoint tool.**

ANNA ADARSH COLLEGE FOR WOMEN

CHENNAI - 40.

Department of B.COM Computer Applications (Shift –II)

Academic Year – 2020 – 2021

Name of the Staff: Dr. Nusrat Jabeen T **Total Hours: 5 / week**

Name of the Subject: Office Automation Lab **Year/Semester: I/I**

OBEJCTIVES:

- **The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like MS Word, MS Excel and Power point.**
- **To acquire knowledge on editor, spread sheet and presentation software.**

OFFICE AUTOMATION PRACTICALS-

MS-WORD

- 1. Text Manipulation: Write a paragraph about your institution and Change the font size and type, Spell check, Aligning and justification of Text
- 2. Bio data: Prepare a Bio-data using template
- 3. Find and Replace: Write a paragraph about yourself and do the following. Find and Replace - Use
- Numbering Bullets, Footer and Headers.
- 4. Tables and manipulation: Creation, Insertion, Deletion (Columns and Rows). Create a mark sheet.
- 5. Mail Merge: Prepare an invitation to invite your friends to your birthday party. Prepare at least five letters.

- **MS-EXCEL**
- 1. Data sorting-Ascending and Descending (both numbers and alphabets)
- 2. Mark list preparation for a student
- 3. Individual Pay Bill preparation.
- 4. Invoice Report preparation.
- 5. Drawing Graphs. Take your own table.
- 6. Creation of Balance Sheet

- **MS-ACCESS**
- 1. Create a database using Students Mark details.
- 2. Perform the Sort operation using the student database.
- 3. Create a database using Employee details and generate a Form to get the input for the table.
- 4. Create a database using Library Information System with appropriate fields and generate a report to display the availability of books in the library.

- **MS-POWERPOINT**
- 1. Create a slide show presentation for a seminar.
- 2. Preparation of Organization Charts
- 3. Create a slide show presentation to display percentage of marks in each semester for all students
- 1. Use bar chart (X-axis: Semester, Y-axis: % marks).
- 2. Use different presentation template different transition effect for each slide.

- **INTERNET**
- 1. WWW (Browsing)
- 2. E-mail

OUTCOMES:

- **Understand and apply the basic concepts of a word processing package.**
- **Understand and apply the basic concepts of electronic spreadsheet software.**
- **Understand and apply the basic concepts of database management system.**
- **Understand and create a presentation using PowerPoint tool.**

Name of the Subject: Python Programming
Year/Semester: I/II
Total Hours: 5 / week

OBEJCTIVES:

- **To introduce the basic features of python programming and impart skills in an Industry standard programming language**
- **Understand fundamental programming concepts of Python programming and its Libraries**
- **Create advanced programming features in Python to solve industry standard problems**

UNIT - I Computer systems – Python Programming Language Computational Thinking – Python Data Types: Expressions, Operator, Variables, and Assignments – Strings – Lists – Objects & Classes – Python standard library.

UNIT - II Imperative programming: Python modules – Built-in-function: print() function –eval() function – user-defined function & assignments -parameter passing.

UNIT – III Text Data, Files & Exceptions: Strings, revisited – formatted output – files – errors & Exceptions – Execution control Structures: decision control & the IF statement

UNIT - IV For LOOP & Iteration Patterns – two-dimensional list- while loop – more loop patterns – additional iteration control statements – Container and Randomness: Dictionaries – other built-in container types – character encodings & strings – module random.

UNIT - V Namespaces – encapsulation in functions – global vs local namespaces exceptional flow control – modules as namespaces.

OUTCOMES:

- **To learn the syntax and semantics of Python programming language**
- **To be able to create advanced programming features in Python to solve industry standard problems**

ANNA ADARSH COLLEGE FOR WOMEN

CHENNAI - 40.

Department of B.COM Computer Applications (Shift –II)

Academic Year – 2020 – 2021

Name of the Staff: Dr. Nusrat Jabeen T **Total Hours: 5 / week**

Name of the Subject: PYTHON PROGRAMMING PRACTICALS
Year/Semester: I/II

Objectives:

To implement the python programming features in practical applications.

- **To write, test, and debug simple Python programs.**
- **To implement Python programs with conditionals and loops.**
- **Use functions for structuring Python programs.**
- **Represent compound data using Python lists, tuples, dictionaries and modules.**

LIST OF EXERCISES:

1. **Program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.**
2. **Program to calculate total marks, percentage and grade of a student. Marks obtained in each of the five subjects are to be input by user. Assign grades according to the following criteria: Grade A: Percentage >=80 Grade B: Percentage >=70 and <80 Grade C: Percentage>=60 and <70 Grade D: Percentage >=40 and <60 Grade E: Percentage <40**
3. **Program, using user-defined function to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.**
4. **Program to display the first n terms of Fibonacci series.**
5. **Program to find factorial of the given number.**
6. **Write a Python program to count the number of even and odd numbers from N numbers.**

7. Python function that accepts a string and calculate the number of upper case letters and lower case letters.

8. Python program to reverse a given string and check whether the give string palindrome or not.

9. Write a program to find sum of all items in a dictionary.

10. Write a Python program to construct the following pattern, using a nested loop 1 22

333

4444

55555

666666

7777777

88888888

999999999

11. Simple analysis listing

OUTCOMES:

- **To learn the syntax and semantics of Python programming language**
- **To be able to create advanced programming features in Python to solve industry standard problems**

Name of the Subject: Object Oriented Programming using C++
Year/Semester II/III
Hours:4 Hours/Week

OBJECTIVES

- To gain an insight into Object Oriented Programming concepts
- Learn difference between Traditional Programming and OOP languages
- To work with simple programs in C++ and also with classes
- Learn about the important features of OOP and apply the same in C++ programs

SYLLABUS

Unit I: Principles of object oriented programming, object-oriented programming paradigm. Applications of OOPs. OOPs concepts – OOPs Languages. Models:-Class Model-State Model and Interaction Model.

Unit II: Introduction to C++-Tokens, Keywords-Identifiers-Variables-Operators-Manipulators-Expressions-Control Structures.

Unit III: Functions - Main Function - Function Prototyping - Inline Functions - Friend and Virtual Functions-Parameters Passing in Functions-Values Return by Functions.

Unit IV: Classes and Objects; Constructors and Destructors; and Operator Overloading and Type Conversions - Type of Constructors - Function overloading.

Unit V: Inheritance: Single Inheritance - Multilevel Inheritance - Multiple Inheritance - Hierarchical Inheritance - Hybrid Inheritance. Virtual Functions and Polymorphism; Managing Console I/O operations.

Text Books: 1. E. Balagurusamy, Object Oriented Programming with C++, Tata McGraw-Hill
Publishing Company Ltd, 6th edition 2013. 2. H. Schildt.
C++ the Complete reference. T M H.1998.

Name of the Subject: Object Oriented Programming using C++ Practicals
Year/Semester II/III
Hours: 2 Hours/Week

1. Simple programs like Area of a circle and square and Temperature conversion, to revise C++ fundamentals
2. Constructor and constructor overloading
3. Friend function
4. Inline Function
5. Function and Function prototyping
6. Function overloading
7. Operator overloading
8. Inheritance, multiple inheritances
9. Virtual Functions and Polymorphism.
10. Text file program

OUTCOMES

- Students will develop Object Oriented Programming skills to model the real world objects.
- The object oriented concepts are inculcated in the students through programming applications
- Effective handling of errors and exceptions can be done by the students in an efficient manner

Year - II

Name of the subject:COMPUTERISED ACCOUNTING(Tally)

SystemsYear/Semester: III/IV

Total Hours: 2 / week

Objective: To develop the skills of students to prepare accounting statements using accounting software

List of Practicals

1. **Company creation and account configuration**
2. **Account classification and accounts Master**
3. **Balance sheet**
4. **Profit and Loss account**
5. **Trail Balance**
6. **Stock Items and Reorder level**
7. **Purchase and sales orders**
8. **Invoice Entry**
9. **Inventory**
10. **Books of accounts**

Outcomes

- **Student can create company and print financial statements.**
- **Students can be employed as accountants.**

Name of the Subject: Programming in Java

Year/Semester II/IV
Total Hours:4 hours/Week
OBJECTIVES

- To get an insight into Pure Object Oriennted Programming
- Learn difference between Java and other OOP languages
- To work with AWT controls
- Introducing graphics programming using Java
- Learn about Java Applets

SYLLABUS
UNIT I:
Introduction to Java-Features of Java-Basic Concepts of Object

Oriented Programming-Java Tokens-Java Statements-Constants-

Variables-Data Types- Type Casting-Operators-Expressions-

Control Statements: Branching and Looping Statements

: **UNIT II:**
Classes, Objects and Methods-Constructors-Methods

Overloading-Inheritance-Overriding Methods-Finalizer and

Abstract Methods-Visibility Control –Arrays, Strings and

Vectors-String Buffer Class-Wrapper Classes
UNIT III:
Interfaces-Packages-Creating Packages-Accessing a Package-

Multithreaded Programming-Creating Threads-Stopping and

Blocking a Thread-Life Cycle of a Thread-Using Thread

Methods-Thread Priority-Synchronization-Implementing the

Runnable Interface
UNIT IV:
Managing Errors and Exceptions-Syntax of ExceptionHandlingCode-Using Finally Statement-Throwing Our Own Exceptions-

Applet Programming-Applet Life Cycle-Graphics Programming-

Managing Input/Output Files: Concept of Streams-Stream

Classes-Byte Stream Classes-Character Stream Classes – Using

Streams-Using the File Class-Creation of Files-Random Accesses-Other Stream Classes.

UNIT V:
Introducing

the AWT: Working with Windows, Graphics and Text- AWT

Classes- Working with Frames-Working with Graphics-Working

with Color-Working with Fonts-Using AWT Controls, LayoutManagers and Menus

OUTCOMES

- Students will develop Object Oriented Programming skills to model the real world objects.
- String handling, Managing Errors and Exceptions will be done effectively
- Effective Applet programming knowledge will be gained

Year - II

Name of the subject:Visual Basic and Relational Database Management

SystemsYear/Semester: III/V

Total Hours: 4 / week

OBJECTIVES:

- To develop the students' ability in Visual Programming
- To understand the concept of Tables
- Imbibe the Database Management System concepts and Relationships
- To learn how to connect Visual Basic with Database

Syllabus

Unit I - Form: Form property – variables- data types-string-numbers-writing simple programs-toolbox-creating controls- name property-command button – Access keys-Image controls- text boxes- labels – radio buttons-check box-frames- message boxes.

- **Unit II** - Displaying information – determinate loops – indeterminate loops – conditionals – built in functions(String, numeric)- functions and procedures. List – arrays –control arrays- combo boxes – projects with multiple forms – menus – MDI forms.
- **Unit III** - Database management systems- advantages – components – class diagrams – events – normalization – 1NF – 2NF – 3NF
- **Unit IV -** Oracle – An introduction – SQL *Plus environment – SQL – Logging into SQL *Plus – SQL*Plus Commands – Errors – Oracle Tables: DDL – Naming Rules and conventions – data types – constraints – creating oracle table – Displaying table information- Altering an existing table – Dropping, renaming , truncating table.
- **Unit V** - DML – Insert and select commands – Data access techniques: ADO - Connection object – Record Set Object. Forms and Reports : Design of form and report – Form layout – Data reports

References:

1. **Gary Cornell. Visual Basic 6 from the ground up. TMH – 1999**
2. **G.V.Post,"Data base Management Systems", TMH, 2000.**
3. **Database Systems using oracle – Nilesh Shah, 2nd edition, PHI**

OUTCOMES

- **Students will develop Visual Programming ability**
- **With the concepts of Front end and Back end Programming students can develop Projects**
- **effectively**

Name of the subject:Visual Basic and Relational Database Management SystemsYear/Semester: III/V

Total Hours: 2 / week

OBJECTIVES:

- **To develop the students' ability in Visual Programming**
- **To understand the concept of Tables**
- **Imbibe the Database Management System concepts and Relationships**
- **To learn how to connect Visual Basic with Database**

PRACTICALS

I. Create necessary tables and write queries for the following problems.

1. Savings bank account for banking

2. Library information system

3. Inventory

4. Invoice

II. Create database and performing the operations given below using a Menu Driven program: (a)Insertion, (b)Deletion, (c)Modification, (d)Generating a reports (Simple) for the following Systems using Oracle

1. Payroll

2. Mark sheet Processing

3. Telephone directory maintenance III. To create a Visual Basic application for a basic designer for drawing Line, Circle, Rectangle, Ellipse and Triangle.

IV. To write a Visual Basic application for calculator that will perform simple as well as complex calculations.

V. A company maintains the record of their employees as : Name, Designation , Details of the pay like Gross pay, Provident Fund deductions, Professional tax and the Net pay. Keep the details of the pay with insert, edit, delete and modify.

OUTCOMES

Students will develop Visual Programming ability

With the concepts of Front end and Back end Programming students can develop Projects
effectively

Name of the subject: Web Technology

Year/Semester: III/VI

Total Hours: 4 / week

OBJECTIVES:

To understand best technologies for solving web client/server problems

To analyze and design real time web applications

To use Java script for dynamic effects and to validate form input entry

To analyze and use appropriate client-side or Server-side applications

SYLLABUS

UNIT – I

Internet Basic – Basic Concepts-Communication on the internet-Internet Domains-Establishing connectivity on the internet. Introduction to HTML – HTML Tags –Paired Tags-Singular Tags-The Structure of the HTML program.

UNIT – II

Lists: Types of Lists-Adding Graphics to HTML Documents-Tables Linking Documents-Frames-Introduction to Frames.

UNIT – III

Introduction to JavaScript-Advantages to Java Script-Writing Java Script into HTML-Data types and Literals-Operators and Expression in Java Script-Conditional Statements in Java Script.

UNIT – IV

Looping in Java Script-Basic Programming Techniques-Functions and Loops in Java Script : Built-in Functions-User Defined Functions-Dialog Boxes.

UNIT – V

Java Script Documents Object Model-Cookies-Dynamic HTML-Cascading Style Sheets-Class-External Style Sheets-Tags in Style Sheets.

OUTCOMES:

Analyze a web page and identify its elements and attributes.

Create web pages using HTML and Cascading Style Sheets.

Build dynamic web pages using JavaScript

Understand Client side programming.

Name of the subject: Web Technology Practicals

Year/Semester: III/VI

Total Hours: 2/ week

OBJECTIVES:LEARNING OBJECTIVES:

- This course gives training in web design and applications.

Practicals

1. **Creation of a personal web page (with links)**
2. **Preparation of a bio data**
3. **Prepare a train time table using row/column span**
4. **Create an array of 10 elements and display it.**
5. **Write a program outputs the squares, roots and cubes of integers between 1 and 100**
6. **Read a string and looks it character by character.**
7. **Design a Simple calculator.**
8. **Create a web form for a library application with necessary controls.**

LEARNING OUTCOMES:

- Debug, test and deploy web applications in different web servers.
- Migrate the web applications to the other platforms like .Net