GOVERNMENT ARTS COLLEGE (AUTONOMOUS)

KUMBAKONAM 612 002

Re - accredited With 'A' Grade by NAAC & Affiliated to Bharathidasan University

DEPARTMENT OF COMPUTER APPLICATIONS
(Effective for those admitted from 2020-2021 onwards)

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SYLLABI

B.C.A.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM

DEPARTMENT OF COMPUTER APPLICATION

Name of the Programme: **B.C.A – BACHELOR OF COMPUTER APPLICATIONS**

Academic Year of Revision: **2020-2021**

Programme Outcome (PO):

After the completion of this programme, the students will be able to

PO1: Apply knowledge of Computer Applications in all relevant fields of employment

PO2: Quantify all round skills and motivate for self-employment in all applied branches

PO3: Demonstrate, solve and understand the major concepts in all disciplines of Computer application. Become enabled as a pivot in the field capable of solving real-time problems

PO4: Quantify fitful for decent employment in any position of private and public sectors

PO5: Provide knowledge of fundamental principles in Computer Applications that will provide a foundation for their later advanced courses like MCA and MBA in specialized subjects and M.Sc Software science

Programme Specific Outcome (PSO):

After the completion of this programme, the students will be able to

PSO1: Face the job market with highly augmented skills and capabilities

PSO2: Suggest measures to solve problems related to the field. Acquire knowledge across different areas of Computer Application too

PSO3: Acquire deep knowledge in the area of computational skills so that they can face boldly to qualify in exams like UPSC, TNPSC and Banking type examinations and other completive examinations conducted by both the Union and state governments

PSO4: Inculcate Computational Know-how in all aspects of approach and to tune skills thereof.
To Start and succeed as an efficient Entrepreneur

PSO5: The advantage of studying this degree course is that the candidate can further pursue higher studies in the earmarked area and other specialized fields of application

Part	Code	Course	Title	Ins Hrs	Credit	Exam Hours	Marks IE	Marks EE	Total
I		LC	Part I Tamil paper I	6	3	3	25	75	100
II		ELC	Part II English paper I	6	3	3	25	75	100
III		CC	Programming in 'C'	5	4	3	25	75	100
III		AC	Applied Statistics I	4	3	3	25	75	100
III		AP	Applied Statistics - Practical (Carry Over)	3	-	-	-	-	-
III		CP	LAB I 'C' Programming	4	3	3	40	60	100
IV		VE	Value Education	2	2	3	25	75	100
			Total	30	18	-	-	-	600
I		LC	Part I Tamil paper II	6	3	3	25	75	100
II		ELC	Part II English paper II	6	3	3	25	75	100
III		CC	Programming in C++	5	4	3	25	75	100
III		AC	Applied Statistics II	5	4	3	25	75	100
III		AP	Applied Statistics - Practical	2	3	3	40	60	100
III		CP	LAB II 'C++' Programming	4	3	3	40	60	100
IV		ES	Environmental Studies	2	2	3	25	75	100
			Total	30	22	-	-	-	700
I		LC	Part I Tamil paper III	6	3	3	25	75	100
II		ELC	Part II English paper III	6	3	3	25	75	100
III		CC	JAVA Programming	5	5	3	25	75	100
III		AC	Principles of Accountancy	5	3	3	25	75	100
III		AP	Principles of Management (Carry Over)	2	-	-	-	-	-
III		CP	LAB III JAVA Programming	4	3	3	40	60	100
IV		NME-1	Public Health and hygiene	2	2	3	25	75	100
			Total	30	19	-	-	-	600
I		LC	Part I Tamil paper IV	6	3	3	25	75	100
II		ELC	Part II English paper IV	6	3	3	25	75	100
III		CC	Data Structures and algorithms	5	5	3	25	75	100
III		AC	Principles of Management	4	4	3	25	75	100
III		AP	Organizational Behavior	2	3	3	25	75	100
III		CP	LAB IV: Data Structures and algorithms lab using C / C++	3	3	3	40	60	100
IV		NME-2	Basic principles of house hold instruments	2	2	3	25	75	100
IV		SBE-1	Essentials of Language and communication	2	2	3	25	75	100
			Total	30	25	-	-	-	800
III		CC	Database Management system	5	5	3	25	75	100
III		CC	Digital Computer Fundamentals and Microprocessors	5	5	3	25	75	100
III		CC	Operating systems	5	5	3	25	75	100
III		CP	LAB V: RDBMS (MySQL)	4	4	3	40	60	100
III		MBE-1	Software Engineering/ System Analysis and Design / Management Information System	5	4	3	25	75	100

III		SBE-2	Computer Graphics and Multimedia	2	2	3	25	75	100
IV		SBE-3	Internet of Things	2	2	3	25	75	100
IV		SSD	Soft Skills Development	2	2	3	25	75	100
			Total	**30**	**29**	**-**	**-**	**-**	**800**
III		CC	Computer Networks	6	6	3	25	75	100
III		CC	PHP Programming	6	6	3	25	75	100
III		CP	LAB VI PHP Programming	5	4	3	40	60	100
III		MBE-2	.NET Programming / E-commerce/Linux Concepts	6	5	3	25	75	100
III		MBE-3	.NET LAB / Linux LAB / Mini Project	6	4	3	25	75	100
V		GS	Gender Studies	1	1	3	25	75	100
V		EA	Extension Activities	-	1	-	-	-	-
			Total	**30**	**27**	**-**	**-**	**-**	**600**
			Grand Total	**180**	**140**	**-**	**-**	**-**	**4100**

Non – Major Electives offered by the department to other major students of the college

1. Fundamentals of Information Technology
2. Working Principles of Internet

Papers		Paper
Part I	Tamil	4
Part II	English	4
Part III	Core – Theory	9
	Core – Practical	6
	Major Elective	3
	Allied	5
	Allied Practical	1
	Non – Major Elective	2
Part IV	ES	1
	VE	1
	Skill Based	3
	Soft Skill Development	1
Part V	GS	1
	Ext. Activities	1
	Total Paper	42

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
PROGRAMMING IN C

Subject Code:	Credits: 4	External Marks: 75	Hours: 5

OBJECTIVE: To make the students to understand the basic constructs and structures of C programming language including preliminaries, functions, statements, unions, files and pointers.

UNIT – I: Introduction to C – Constants, Variables, Data types – Operators and Expressions, Type Declarations, Arithmetic operators, Relational and Logical operators, Type conversions, Increment and Decrement operators, conditional operators, Bitwise operators, Assignment operators, Expressions, Conditional Expressions, Mathematical Functions.

UNIT – II: Managing Input and Output Operations – Reading a Character, Writing a Character, Formatted Input – Scan (), Formatted Output – Pintf () etc. Decision Making and Branching – Simple If Statement, IF – ELSE, ELSE – IF, Switch – Case Statements, Break, Continue, GoTo and Labels. Decision Making and Looping. The WHILE Statement, DO Statement, The FOR Statement, Jumps in Loops etc.

UNIT – III: Fundamentals of Arrays, Elements of Arrays, Accessing of Arrays, Retrieval of Arrays – Along Operations in Branching and Loops. Parameter of Passing of Arrays, One Dimensional – Arrays. Two dimensional – Arrays. Multi Dimensional Arrays. User Defined Function and Strings – Calling a Function, Called a Function, Category of Function, Recursion, Function With Arrays. Parameter Passing of Functions, For (;;), Void ( ), Main ( ) etc.

UNIT – IV: Structures and Unions – Structure Definition Giving Values to Members, Initialization, Comparison of Structure Variables, Arrays of Structures, Arrays Within Structures, Structures Within Structures, Structures and Functions. Unions.

UNIT – V: Pointers – File Management in C. Understanding Pointers, Accessing the Address of a Variable, Declaring, Initializing, Expressions of Pointers. Pointers and Arrays, Pointer and Functions, Pointer and Structures. Defining and Opening a File, Closing a file, I/O Operations in Files, Random Access to Files, Command Line Arguments.

COURSE OUTCOMES:
- o Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.
- o Demonstrate an understanding of computer programming language concepts.
- o To be able to develop C programs on windows/linux platform.
- o Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
- o Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures. Student must be able to define union and enumeration user defined data types.
- o Develop confidence for self education and ability for life-long learning needed for Computer language.

TEXT BOOK: Balagurusamy, E., "Programming in ANSI C", Third Edition, Tata McGraw – Hill, 2006 (ISBN – 0 – 07 – 053477-2)

REFERENCE BOOK: "The C Programming Language" – Brain W Kernighan Dennis M Ritchie – Eastern Economy Edition.

Byron S Gottfried., "Programming With C", Shaum; S Outline Series – Tata McGraw Hill Publications, New Delhi.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.
B.C.A. (COMPUTER APPLICATION)

LAB-I: 'C' PROGRAMMING

Subject Code:	Credits: 3	External Marks: 60	Hours: 4

OBJECTIVES: To create excellent programs in various aspects of C Language.

EXPERIMENTS:

1. To creates Temperature conversion – from Fahrenheit to Celsius & Celsius to Fahrenheit.

2. To explain the solutions of a Quadratic equation in all cases.

3. To explain the sum of series by using math functions in Sine, Cosine, Tangent and Exponential etc.

4. To Read and Print the characters and strings by using scanf ( ),printf ( ) format codes of I/O functions.

5. To create Pay bill calculations by using Switch – Case Expressions, etc.

6. To create an Illustration of Nested Loops along with Break and Continue.

7. To create an Ascending & Descending order of Numbers by using Arrays.

8. To create a program for Sorting of Names in the Alphabetical order.

9. To create matrix - Array of Addition – subtraction – multiplication by using various functions.

10. To create a program using Arrays within the Structure.

11. To create a program using Structures as Function Parameters.

12. To create a program for Book shop Inventory.

13. To create a program using Accessing Addresses of variables.

14. To create a program for Pointers as Function Parameters.

15. Writing - Reading from a File operation in the C language.

COURSE OUTCOMES:

- Understanding a concept of functional hierarchical code organization.
- Ability to define and manage data structures based on problem subject domain.
- Ability to work with textual information, characters and strings.
- Ability to work with arrays of complex objects.
- Understanding a concept of object thinking within the framework of functional model.
- Understanding a defensive programming concept. Ability to handle possible errors during program execution.

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.
B.C.A

PROGRAMMING IN C++

Subject Code:	Credits: 4	External Marks: 75	Hours: 5

OBJECTIVE: The objective of course is to develop programming skills of students, using object oriented programming concepts, learn the concept of class and object using C++ and develop classes for simple applications.

UNIT I: Basic Concepts of Object- Oriented Programming - Benefits of OOP – Applications of OOP – Structure of C++ Program – Tokens and Expressions: Keywords, Basic Data Types, User Defined Data Type, Derived Data Type, Declaration of Variables, Dynamic Initialization of Variables, Reference Variables, Operators in C++, Scope Resolution Operator, Member Dereferencing Operators, Type Cast Operator, Expressions and Implicit Conversions.

UNIT II: Control Structures: Simple If Statement, If.. Else Statement, Switch Statement, Do-While Statement, While Statement, For Statement - Functions in C++: Main Function, Function Prototyping, Call By Reference, Return By Reference, Inline Functions.

UNIT III: Classes and Objects: Specifying a Class, Defining Member Functions, Making an Outside Function Inline, Nesting of Member Functions, Arrays within a Class, Arrays of Objects, Objects as Function Arguments, Friendly Functions, Returning Objects. – Constructors and Destructors: Constructors, Parameterized Constructors, Multiple Constructors in a Class, Copy Constructor.

UNIT IV: Operator Overloading and Type Conversions: Defining Operator Overloading, Overloading Unary Operators, Overloading Binary Operators, Manipulation of Strings Using Operators, Rules for Overloading Operators, Type Conversions

UNIT V: Inheritance: Introduction, Defining Derived Classes, Single Inheritance, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance - Pointers: Introduction, Pointers to Objects, This Pointer, Pointers to Derived Classes – Working with Files: Introduction, Opening and Closing a File, Detecting End-of-file.

COURSE OUTCOMES:
- Identify importance of object oriented programming and difference between structured oriented and object oriented programming features.
- Able to make use of objects and classes for developing programs.
- Able to use various object oriented concepts to solve different problems.

TEXT BOOK: Balagursamy E, Object Oriented Programming with C++, Tata McGraw Hill Publications, Sixth Edition, 2013

REFERENCE BOOKS: Ashok Kamthane, Programming in C++, Pearson Education, 2013.

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
LAB-II: 'C++' PROGRAMMING

Subject Code:	Credits: 3	External Marks: 60	Hours: 4

OBJECTIVE:

- Introduces object-oriented programming concepts using the C++ language.
- Introduces the principles of data abstraction, inheritance and polymorphism.
- Introduces the principles of virtual functions and polymorphism.
- Introduces handling formatted I/O and unformatted I/O.
- Introduces exception handling.

1. Classes
Write a Program using a class to represent a Bank Account with Data Members – Name of depositor, Account Number, Type of Account and Balance and Member Functions – Deposit Amount – Withdrawal Amount. Show name and balance. Check the program with own data.

2. Constructor & Destructor
Write a program to read an integer and find the sum of all the digits until it reduces to a single digit using constructor, destructor and default constructor.

3. Default & Reference Argument
Write a program using function overloading to read two matrices of different data types such as integers and floating point numbers. Find out the sum of the above matrices separately and display the total sum of these arrays individually.

4. Operator Overloading
a. Addition of Two Complex Numbers.
b. Matrix Multiplication

5. Inheritance
Prepare Pay Roll of an employee using Inheritance.

6. Pointers
a. Write a Program to find the number of vowels in a given text
b. Write a Program to check for Palindrome

7. Files
Prepare Students Mark List in a file with Student Number, Mark in four subjects and Mark Total. Write a program to arrange these records in the ascending order of Mark Total and write them in the same file overwriting the earlier records.

8. Exception Handling
Prepare Electricity Bill for customers generating and handling any two Exceptions.

COURSE OUTCOME:

Ability to develop applications for a range of problems using object-oriented programming techniques

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
JAVA PROGRAMMING

Subject Code:	Credits: 5	External Marks: 75	Hours: 5

OBJECTIVE:

- To introduce the object oriented programming concepts.
- To understand object oriented programming concepts, and apply them in solving Problems.
- To introduce the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes.
- To introduce the implementation of packages and interfaces.
- To introduce the concepts of exception handling and multithreading.
- To introduce the concepts of Collection Framework.
- To introduce the design of Graphical User Interface using applets and swing controls.

UNIT I: Fundamentals of Object Oriented Programming: Basic Concepts–Constants – Variables –Data types – Declaration of Variables – Giving values to Variables – Scope of Variables –Symbolic Constants –Type Casting. Operators – Arithmetic Operators – Relational Operators – Logical Operators –Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators.

UNIT II: Decision Making and Branching**:** Decision Making with if Statement –Simple if Statement –The if…else Statement –Nesting of if…else Statement –The else if Ladder –The Switch Statement –The Conditional Operator. Decision Making and Looping: Introduction –The While Statement –The do Statement –The For Statement –Additional features of for loop–Nested of for loops –Jump in Loops –Jumping out of a loop – Skipping a part of a loop.

UNIT III: Classes, Objects and Methods: Defining a Class –Adding Class Members –Accessing Class Members – Constructors –Methods Overloading –Static Members –Nesting of Methods Inheritance –Overriding Methods – Final Variable and Methods –Final Variable and Methods –Final Classes – Finalizer Methods –Abstract Methods and Classes –Array and String –Arrays One Dimensional Arrays –Two Dimensional Arrays –String Arrays.

UNIT IV: Interfaces and Multiple Inheritance –Defining Interfaces –Extending Interfaces Implementing Interfaces – Accessing Interface Variables –Packages –Java API Packages –Using System Packages –Creating and Accessing Packages –Adding class to a Packages –Multi Threaded Programming –Creating Threads –Extending the thread class –Stopping and blocking a Thread –Life cycle of a thread.

UNIT V: Managing Errors and Exceptions –Types Of Errors –Exceptions –Syntax of Exception handling code –Multiple Catch Statements –Using Finally Statement –Throwing Own Exceptions. Applet Programming –Local and Remote Applets –Building Applets Code –Applet Life cycle– Designing a Web Page –Adding applet of HTML File –Running the applet Managing Input/output files in Java –Stream Classes –Byte Stream Classes –Character Stream Classes –Creation of Files –Reading/Writing Characters –Reading/Writing Bytes.

COURSE OUTCOMES:

- Able to understand the use of OOPs concepts.
- Able to solve real world problems using OOP techniques.
- Able to understand the use of abstraction.
- Able to understand the use of Packages and Interface in java.
- Able to develop and understand exception handling, multithreaded applications with synchronization.
- Able to understand the use of Collection Framework.
- Able to design GUI based applications and develop applets for web applications.

TEXT BOOK: Programming with JAVA, E.Balagurusamy, Tata McGraw-Hill Publishing Company Limited, New Delhi.

REFERENCE BOOK: Java 2: The Complete Reference, Fifth Edition, Herbert Schildt, Tata McGraw- Hill Publishing Company Limited,New Delhi.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
LAB-III: JAVA PROGRAMMING

Subject Code:	Credits: 3	External Marks: 60	Hours: 4

OBJECTIVES:

- To build software development skills using java programming for real world applications.
- To implement frontend and backend of an application
- To implement classical problems using java programming.

EXPERIMENTS:

1. Write a program to sort the given numbers using Arrays.

2. Write a program to implement the FIND and REPLACE operations in the given multiple text.

3. Write a program to implement a calculator to perform basic Arithmetic Operations.

4. Write a program to find the area of a rectangle using Constructor.

5. Write a program to find the student's percentage and grade using Command Line Arguments.

6. Write a program to draw circle or triangle or square using Polymorphism and Inheritance.

7. Implement multiple inheritance concepts in java using Interface, you can choose your own example of a company or education institution or a general concept which requires the use of Interface to solve a particular problems.

8. Write a program to create threads and assign priorities to them

9. Write a program to develop an applet to play multiple audio clips using Multithreading.

10. Write a program to create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

COURSE OUTCOMES:

- Knowledge of the structure and model of the Java programming language.
- Use the Java programming language for various programming techniques.
- Develop software in the Java programming language.
- Evaluate user requirements for software functionality required todecide whether the Java programming language can meet userrequirements.
- Propose the use of certain technologies by implementing them inthe Java programming language to solve the given problem.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
DATA STRUCTURES AND ALGORITHMS

Subject Code:	Credits: 5	External Marks: 75	Hours: 5

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

UNIT – I: Introduction: History of algorithms – Definition, Structure and Properties of Algorithms – Development of an Algorithm – Data Structures and Algorithms – Data Structure-Definition and Classification. Analysis of Algorithms: Efficiency of Algorithms – Apriori Analysis – Asymptotic Notations – Time Complexity of an Algorithm Using O Notation – Average, Best and Worst Case Complexities.

UNIT – II: Arrays: Introduction – Array Operations – Number of Elements in an Array – Representation of Arrays in Memory. Stacks: Introduction – Stack Operations. Queues: Introduction – Operations on Queues – Circular Queues. Linked Lists: Introduction – Singly Linked List – Circularly Linked List – Doubly Linked List.

UNIT – III: Trees and Binary Trees: Introduction – Trees: Definition and Basic Terminologies – Representation of Trees. Binary Trees: Basic Terminologies and Types – Representation of Binary Trees – Binary Tree Traversals. Graphs: Introduction – Definition of Basic Terminologies – Representations of Graphs – Graph Traversals.

UNIT – IV: Binary Search Trees and AVL Trees: Introduction – Binary Search Trees: Definition and Operations. AVL Trees: Definition and Operations. File Organization: Introduction – Files – Keys – Basic File Operations – Heap or Pile Organization – Sequential File Organization – Indexed Sequential File Organization – Direct File Organization.

UNIT – V: Searching: Introduction – Linear Search – Transpose Sequential Search – Interpolation Search – Binary Search – Fibonacci Search. Internal Sorting: Introduction – Bubble Sort – Insertion Sort – Selection Sort – Merge Sort – Shell Sort.

COURSE OUTCOMES:
- o Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.
- o Understand basic data structures such as arrays, linked lists, stacks and queues.
- o Solve problem involving graphs, trees and heaps
- o Apply Algorithm for solving problems like sorting, searching of data
- o Select basic data structures and algorithms for autonomous realization of simple programs or program parts
- o Determine and demonstrate bugs in program, recognise needed basic operations.
- o Formulate new solutions for programing problems or improve existing code using learned algorithms and data structures
- o Evaluate algorithms and data structures in terms of time and memory complexity of basic operations.

TEXT BOOK: "Data Structures and Algorithms – Concepts, Techniques and Applications" – **G . A . Vijayalakshmi Pai** (G A V PA I) – TATA McGraw – Hill, 2008.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
LAB-IV: DATA STRUCTURES AND ALGORITHMS LAB USING C/C++

Subject Code:	Credits: 3	External Marks: 60	Hours: 3

OBJECTIVES: Have a good overall understanding of basic data structures, their design and analysis. Know how to implement many of them in C++, and use them in other applications.

EXPERIMENTS:

Write C++ programmes to implement the following:

1. SORTING:

> a. Bubble Sort
>
> b. Insertion Sort
>
> c. Selection Sort
>
> d. Heap Sort
>
> e. Quick Sort

2. SEARCHING:

> a. Linear Search
>
> b. Binary Search

3. Matrix Manipulations

4. Polynomial Addition & Multiplication

5. Operations on Stack and Conversion of expressions

6. Operations on Queue

7. Operations on Linked List

8. Operations on Doubly Linked List

9. Operations on Binary tree and Traversals

10. File Processing

COURSE OUTCOMES:
- o Understand basic data structures such as arrays, linked lists, stacks and queues.
- o Solve problem involving graphs, trees and heaps
- o Apply Algorithm for solving problems like sorting, searching of data
- o Formulate new solutions for programming problems or improve existing code using learned algorithms and data structures
- o Evaluate algorithms and data structures in terms of time and memory complexity of basic operations.

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ESSENTIALS OF LANGUAGE AND COMMUNICATION

OBJECTIVES:

- The course should enable the students to:
- Develop English language skills in multidisciplinary areas.
- Communicate in an intelligible English accent and pronunciation.

UNIT-I

GENERAL INTRODUCTION AND LISTENIG SKILLS

Introduction to communication skills; Communication process; Elements of communication; Soft skills vs hard skills; Importance of soft skills for engineering students; Listening skills; Significance; Stages of listening; Barriers to listening

UNIT-II

SPEAKING SKILLS

Significance; Essentials; Barriers and effectiveness of speaking; Verbal and non-verbal communication; Generating talks based on visual prompts; Public speaking; Addressing a small group or a large formal gathering; Oral presentation; Power point presentation.

UNIT-III

VOCABULARY & GRAMMAR

Vocabulary:

The concept of Word Formation; Root words from foreign languages and their use in English; Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives; Synonyms; Antonyms; Standard abbreviations; Idioms and phrases; One word substitutes.

Grammar:

Sentence structure; Uses of phrases and clauses; Punctuation; Subject verb agreement; Modifiers; Articles; Prepositions.

UNIT-IV

READING SKILLS

Significance; Techniques of reading; Skimming-Reading for the gist of a text; Scanning - Reading for specific information; Intensive; Extensive reading; Reading comprehension;; Reading for information transfer; Text to diagram; Diagram to text.

UNIT-V

WRITING SKILLS

Significance; Effectiveness of writing; Organizing principles of Paragraphs in documents; Writing introduction and conclusion; Techniques for writing precisely; Letter writing; Formal and Informal letter writing; E-mail writing , Report Writing.

<u>**Course Outcome :**</u> By the end of the course , the students will be able to :

1. Understand and extract the essential information from a written or spoken text on a familiar topic

2. Scan a short written text for specific information

3. Control a range of isolated words and phrases dealing with concrete everyday topics like hobbies, shopping, food and eating , weather and seasons , household goods , city and country life , etc.

4. Perform a variety of social functions including greetings , introductions and farewells , making and responding to requests , suggestions , invitations and apologies , conducting simple transactions in shops and offices , asking for and giving directions , etc

5. Describe people, places, likes and dislikes and daily routines in a series of simple phrases and sentences

6. Construct short and simple descriptive paragraphs about people, places and events.

7. Write a clear topic sentence for a paragraph.

8. Understand the form and function of the basic official correspondences.

Text Books:

Handbook of English for Communication (Prepared by Faculty of English, IARE)

Reference Books:

1. Sanjay Kumar and Pushp Lata. ―Communications Skills‖. Oxford University Press. 2011.

2. Michael Swan. ―Practical English Usage*"*, Oxford University Press, 1995.

3. F.T. Wood. ―Remedial English Grammar‖. Macmillan. 2007.

4. William Zinsser. ―On Writing Well‖. Harper Resource Book, 2001.

5. Raymond Murphy, ―Essential English Grammar with Answers‖, Cambridgend

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
DATABASE MANAGEMENT SYSTEM

Subject Code:	Credits: 5	External Marks: 75	Hours: 5

OBJECTIVE: To provide the basic concepts of the Database systems including data models, Storage Structure, Normalization and SQL.

UNIT 1:   Introduction Database - Systems Applications - Purpose of Database Systems - View of data – Database Languages – Data Storage and Querying – Database Architecture – History of Database Systems.

UNIT 2:   Relational Model: Structure of Relational Database – Fundamental Relational Algebra – Additional Relational Algebra Operations – Extended Relational Algebra Operations – Null Values – Modification of the Database.

UNIT 3:   SQL: Overview of the SQL Query Language – SQL Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate Functions – Null Values – Nested Sub Queries – Views- Modification of the Database – Join Relations.

UNIT4:   Database Design and the E-R Model: Overview of the Design Process – The Entity Relationship Model– Entity Relationship Diagrams – Entity Relationship Design Issues – Constraints – Reduction to Relational Schemas – Other Aspects of Database Design.

UNIT 5:   Relational Database Design: Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition Using Functional Dependencies – Functional Dependency Theory – Modeling temporal data.

COURSE OUTCOMES:

- Describe the fundamental elements of relational database management systems
- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
- Design ER-models to represent simple database application scenarios
- Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
- Improve the database design by normalization.

TEXT BOOK: Database Systems Concepts, Fifth edition,AbrahamSilberschatz, Henry F.Korth, S. Sudarshan, McGraw-Hill-2006.

REFERENCE BOOKS: DBMS Designing and Business Applicationsby GERALD V. POST- McGraw Hill publications.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
DIGITAL COMPUTER FUNDAMENTALS AND MICROPROCESSORS

Subject Code: 20U5CA6	Credits: 5	External Marks: 75	Hours: 5

OBJECTIVE: To disseminate knowledge of digital principles, combinational and sequential logicfundamentals, to introduce microprocessor, its principles and its applications to undergraduate students of computer science and applications

UNIT I: Number Systems and Codes: Binary, Octal and Hexadecimal Number Systems- Conversion between number systems- Complements - Binary Arithmetic- Binary CodesBoolean Algebra and Logic Gates: AND, OR, NOT, NAND, NOR, XOR, XNOR gates –Truth tables- Applications of XOR gates- Fundamentals of Boolean Algebra- Booleanfunctions- Minterms and Maxterms.

UNIT II: Boolean Laws and Expressions: Laws and theorems of Boolean algebra- Demorgan'stheorems- the Universal building blocks – NAND and NOR gates - Canonical SOP and POS forms- Algebraicsimplification-Karnaugh Maps- SOP and POS Simplification- NAND / NORimplementation of Boolean expressions- Don't care conditions- Overlapping, Rollinggroups, eliminating redundant groups.

UNIT III: Combinational Logic Circuits: Half and FullAdders- Half and Full Subtractors- Parallel binary adder- Multiplexer & De-Multiplexer-Encoder & Decoder.Sequential Logic Circuits: NAND, NOR latches- SR Flipflop-JK Flipflop – Edge triggering- PRESET and CLEAR inputs- Shift Register, - Intermediary to Binary Counters -Asynchronous Forms- BCD counter.

UNIT IV: Microprocessor architecture: Introduction- Intel 8085: ALU-Timing and Controlunit – Registers- Data and Address Bus-Pin configuration-Intel 8085 instructions—Instruction cycle- Timing diagram- RISC and CISC processors.

UNIT V: Instruction Set for Intel8085: Instruction and Data formats- Addressing modes- Status Flags- Intel 8085instruction groups.Assembly Language Programming: Addition- Subtraction- Decimal addition /subtraction- Complement Arithmetic- Shifting – Masking- concept of Arrays and operationon array values- Sum of Series – Multiplication – Division- Multibyte addition / subtraction.

COURSE OUTCOME:

- Describe the various structures of various number systems and its application in digital design.
- Develop the appropriate truth table from a description of a combinational logic function.
- Implement combinational logic function described by a truth table using and/or/inv gates, muxes or ROMs, and analyze its timing behavior.
- Describe the operation and timing constraints for latches and registers.
- Design memory organization that uses banks for different word size operations.

TEXT BOOKS:

1. Thomas Bartee C, Digital Computer Fundamentals. TMH, 3rd Edition

2. Malvino and Leech, Digital principles and Applications, TMH, 2nd Edition

3. Badri Ram, Fundamentals of Microprocessors and Microcomputers, DhanpatRai

Publications (P) Ltd, 4th Edition

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
OPERATING SYSTEMS

Subject Code: 20U5CA7	Credits: 5	External Marks: 75	Hours: 5

OBJECTIVE:

- To be aware of the evolution and fundamental principles of operating system, processes and their communication.
- To understand the various operating system components like process management, memory management and
- To know about file management and the distributed file system concepts inoperating systems

UNIT I: Introduction: what is an operating system?- system components – OS services – System Calls- System Programs – System Structure: Simple Structure – LayeredApproach - Virtual Machines – System Design and Implementation: Design Goals.

UNIT II: Process Management: Process Concept – Process Scheduling – CPUScheduling: Basic concept – Scheduling Criteria – Scheduling Algorithms – ProcessSynchronization: The Critical Section problem – Semaphores – Deadlock: DeadlockCharacterization – Deadlock Prevention – Deadlock avoidance – Detection.

UNIT III: Storage Management: Swapping – Contiguous Memory management –Paging Memory Management – Segmentation – Segmentation With Paging – DemandPaging – Page Replacement: Basic Scheme – Various Replacement Algorithms-Thrashing.

UNIT IV: I/O Systems: I/O Hardware – Polling- Direct Memory Access – I/OInterrupt – Application I/O Interface – Kernal I/O Subsystem: I/O Scheduling – Buffering– Caching - Spooling.

UNIT V: OS Security: The Security Problems – User Authentication – ProgramThreads – System Threads – Securing Systems and Facilities – Intrusion Detection.

COURSE OUTCOME:

- Describe the general architecture of computers.
- Describe, contrast and compare differing structures for operating systems.
- Understand and analyse theory and implementation of: processes, resource control (concurrency etc.), physical and virtual memory, scheduling, I/O and files.

TEXT BOOK:

OPERATING SYSTEM CONCEPTS – Silberschatz, Galving, Gangne, Sixth Edition, Publication Wiley India.

REFERENCE BOOK:

1) System Programming and Operating System – D.M Dhamdhere, TataMcGraw Hill publishing.

2) Dental H.M ─Introduction to OS‖ Addison Wesley Publishing Co, 1998.

LAB-V: RDBMS (MySQL)

Subject Code: 20U5CAP5	Credits: 4	External Marks: 60	Hours: 4

OBJECTIVE:

1. To explain basic database concepts, applications, data models, schemas and instances.
2. Describe the basics of SQL and construct queries using SQL.
3. To emphasize the importance of normalization in databases.
4. To facilitate students in Database design
5. To familiarize issues of concurrency control and transaction management.

EXPERIMENTS:

1. Creating & updating and inserting into database & simple queries.

2. Uses of Select statement - for queries.

    a. AND' OR' NOT Operators' WHERE clause.

    b. UNION' INTERSECTION' MINUS.

    c. Sorting and grouping.

3. Nested queries using SQL.

    a. Sub queries.

    b. Join.

4. Built-in functions of SQL.

5. Use of indexes' creating views and querying in views.

6. Cursors' triggers and stored procedures and functions.

7. Case studies:

    a. Student evaluation systems.

    b. Pay - roll system

    c. Income tax calculations.

    d. Seat reservation Problems

    e. Mark - sheet Preparation.

COURSE OUTCOME:

- Apply the basic concepts of Database Systems and Applications.
- Use the basics of SQL and construct queries using SQL in database creation and interaction.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
MBE – I – SOFTWARE ENGINEERING

Subject Code:	Credits: 4	External Marks: 75	Hours: 5

OBJECTIVES:

- Understanding of software requirements and the SRS documents.
- Understanding of the role of project management including planning, scheduling, risk management, etc.
- Understanding of different software architectural styles.
- Understanding of implementation issues such as modularity and coding standards.
- Understanding of approaches to verification and validation including static analysis, and reviews. Understanding of software testing approaches such as unit testing and integration testing.

UNIT I: Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. Planning a Software Project: Defining the Problem – Developing a Solution Strategy – Planning the development Process – The Phased Life – Cycle Model – The Cost Model – The Prototype Life – Cycle Model – Planning an Organizational Structure – Project Structure – Programming Team Structure.

UNIT II: Software Cost Estimation: Software Cost Factors – Programmer Ability – Product Complexity Product Size – Available Time – Required Level of Reliability – Level of Technology – Software Cost Estimation Techniques – Expert Judgment– Delphi Cost Estimation Work Breakdown Structure – Algorithmic Cost Models. Staffing – Level Estimation

UNIT III: Software Requirements Definition: The Software Requirements Specification– Formal Specification Techniques– Relational Notations – State Oriented Notations .Software Design: Fundamental Design Concepts – Abstraction – Information Hiding – Structure – Modularity Concurrency – Verification – Modules and Modularization Criteria – coupling and cohesion.

UNIT IV: Design Notations – Data Flow Diagrams – Structure Charts – HIPO Diagrams – Pseudocode Structured Flowcharts – Structured English – Decision Tables – Design Techniques – Stepwise Refinement – Structured design –Jackson Structured Programming – Implementation Issues - Structured Coding Techniques – Coding Style – Standard and Guidelines – Documentation Guidelines.

UNIT V: Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing – Software Maintenance - Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management.

COURSE OUTCOMES:

- Ability to apply software engineering principles and techniques.
- Ability to develop, maintain and evaluate large-scale software systems.
- To produce efficient, reliable, robust and cost-effective software solutions.
- Ability to perform independent research and analysis.
- Ability to work as an effective member or leader of software engineering teams.
- To manage time, processes and resources effectively by prioritising competing demands to achieve personal and team goals Identify and analyzes the common threats in each domain.
- Ability to understand and meet ethical standards and legal responsibilities.

TEXTBOOK: Software Engineering Concepts– Richard Fairley, 1997,

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.

Computer Graphics and Multimedia

Subject Code:	Credits: 2	External Marks: 75	Hours: 2

OBJECTIVE:

To promote students with ideas of computer graphics and its applications.

UNIT – I:

A survey of computer graphics: Computer aided design – presentation graphics – computer art – entertainment – education and training – visualization – image processing – graphical user interface.

UNIT-II:

Overview of graphics systems: Video display devices – Raster scan systems – Random scan systems – graphics monitors and workstations – input devices – hard copy devices – graphics software.

UNIT –III:

Attributes of output primitives: Line attributes – curve attributes – color and grayscale levels – area fill attributes – character attributes – bundled attributes – inquiry functions.

UNIT IV:

Two dimensional geometric transformations: Basic transformation – matrix representation – composite transformation – other transformation.

UNIT – V:

Computer Animation: Design of animation sequence – general computer animation functions – raster animation – computer animation languages – key frame systems – morphine – simulating accelerations – motion specification – direct motion specification – goal directed systems – kinematics and dynamics.

TEXT BOOK:

Computer graphics – Donald Hearn & M. Pauline Baker – Prentice – Hall of India Pvt.Ltd.

REFERENCE BOOK:

Newman William M, & Sproull Robert F, Principles of interactive computer graphics, Second edition, Tata –McGraw Hill, 1 (ISBN 0-07-463293-0)

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
SBE – III – INTERNET OF THINGS

Subject Code:	Credits: 2	External Marks: 75	Hours: 2

OBJECTIVES: Internet of Things (IoT) is aimed at enabling the interconnection and integration of the physical world and the cyber space. It represents the trend of future networking, and leads the third wave of the IT industry revolution.

UNIT I: Introduction - Definition & characteristics of IoT - physical design of IoT - logical design of IoT - IoT enabling Technologies - IoT levels & Deployment templates. Domain specific Iots : Home Automation - cities - Environment - Energy - retail - logistics - Agriculture - Industry i Health and life style.

UNIT II: IoT and M2M - Deference between Iot and M2M - SDN and NFV for lot - IoT systems management - SNMP - YANG - NETOPEER

UNIT III: IoT platforms design Methodology - purpose and specification - process specification - Domain model specification - Information model specification - Service specification - IoT level specification - functional view specification - operational view specification - Device and component Integrators - Application Development.

UNIT IV: Logical design using python - Installing python - type conversions - control flow - functions - modules - File handling - classes. IoT physical devices and End points, building blocks of IoT device - Raspberry Pi - Linux on Raspberry Pi - Raspberry Pi interfaces.

UNIT V: IoT physical servers & cloud computing - WAMP - Xively cloud for IoT - python Web application frame work - Amazon web services for IoT.

Course Learning Outcomes
- Describe what IoT is and how it works today
- Recognise the factors that contributed to the emergence of IoT
- Design and program IoT devices
- Use real IoT protocols for communication
- Secure the elements of an IoT device
- Design an IoT device to work with a Cloud Computing infrastructure.
- Transfer IoT data to the cloud and in between cloud providers
- Define the infrastructure for supporting IoT deployments

Text Book:
Internet of Things - A hands on Approach Authors : Arshdeep Bahga, Vijay Madisetti Publisher : Universities press. Reference Book : Internet of Things - Srinivasa K.G., Siddesh G.M. Hanumantha Raju R. Publisher : Cengage Learning India pvt. Ltd (2018)

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.

COMPUTER NETWORKS

Subject Code:	Credits: 6	External Marks: 75	Hours: 6

OBJECTIVE: To develop an understanding, the basic concepts of data communication, layered model, protocols and interworking between computer networks and switching components in telecommunication systems.

UNIT I: Introduction to Data Communication and Networking: Fundamental Concepts – Data Communications – Protocols – Standards – Standards Organizations – Analog and Digital Signals - Bandwidth Basics – Amplitude, Period, Frequency and Phase. Modes of Data Transmission and Multiplexing: Parallel and Serial Communication – Simple, Half duplex and Full duplex - Multiplexing – Types of Multiplexing – FDM verses TDM.

UNIT II: Transmission Errors Detection and Correction: Error classification – Types of Errors – Error Detection: Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) - Cyclic Redundancy Check (CRC) – Checksum - Error Correction using Hamming code.Transmission Media: Guided Media – Unguided Media – Shannon Capacity – Digital Subscriber Line (DSL).

UNIT III: Network Topologies, Switching and Routing Algorithms: Mesh Topology – Star Topology – Tree Topology – Ring Topology – Bus Topology – Hybrid Topology. Switching Basics: Circuit switching – Packing Switching – Message Switching – Routers and Routing – Factors affecting Routing Algorithms – Routing Algorithm Distance Vector Routing. Networking Protocols and OSI Model: The OSI Model – OSI Layer Functions.

UNIT IV: Data Link Layer: Flow Control: Stop and Wait protocol – Sliding Window Protocol. Error Control: Go – Back n ARQ – Selective Repeat. Data Link Layer protocols: Asynchronous data link layer – Synchronous Data Link Layer. ISDN: Back ground of ISDN – ISDN Architecture.

UNIT V: X.25 Protocol: Characteristics of X.25 – Packet Format – Internetworking X.25 Operation Concepts and Devices: Internetworking Devices – Repeaters – Bridges – Routers Gateways. Transport Layer: Transmission Control Protocol (TCP) – User Datagram Protocol (UDP). Application Layer: Electronic Mail – File Transfer Protocol (FTP) – Telnet.

COURSE OUTCOMES:
- Recognize the technological trends of Computer Networking.
- Discuss the key technological components of the Network.
- Understand and building the skills of sub-netting and routing mechanisms.
- Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation

TEXT BOOK: Computer Communication Networks –Achyut S Godbole and AtulKahate. Tata McGraw Hill.

REFERENCE BOOK: Computer Networks 4th Edition, Andrew S. Tanenbaum, Prentice Hall.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.
B.C.A
PHP PROGRAMMING

Subject Code:	Credits: 6	External Marks: 75	Hours: 6

OBJECTIVE: To Understand the Concepts of PHP.

UNIT I: Essentials of PHP: Introduction of PHP – Variables – Constants – Understanding PHP's Internal Data types – Operator and Flow Control:Math– Assignment–Increment and Decrement-String-Bitwise-LogicalOperators-Using IF Statements-IF Else Statements-ELSE IF Statements-Switch Statements-Using For Loops-While Loop-Do-While Loop-skipping Iteration.

UNIT II: Strings and Array: The String Function-Converting to and from string-Formatting Text String-Building yourself Some Arrays-Modifying data in Arrays-Deleting Array Elements-Handling Multidimensional Arrays.Creating Functions:Creating functions in PHP-passing Functions Some Data-Using Default Argument-Passing by Reference-Introducing variable scope in PHP-Accessing global data-Working with Static variables.

UNIT III: Reading data in Web Pages: Handling Text Fields-Handling Text Area-Handling Check boxes-Handling Radio buttons-Handling List boxes-Handling password controls-Handling Hidden controls-Handling Image Maps-Handling File Uploads-Handling Buttons.Object oriented Programming:Classes-Objects Access to properties and methods-public Access-private access-constructors and Inheritance-overriding method.

UNIT IV: File Handling: Opening File using fopen-Reading Text from a File Using fgets-Closing a File.Working with Database:Create My SQL Database –Creating New Table-updating Databases-Inserting New Data Items into a Database-Deleting Records.

UNIT V: Session, Cookies and FTP:Setting a Cookies-Reading a Cookies-Deleting Cookies-working with FTP-Downloading Files With FTP-Uploading Files With FTP-Delete a File with FTP-Sending E-mail.Ajax-Getting Stared With Ajax – Writing Ajax – Create the XMLHttpRequest Object-Opening the XMLHttpRequest object-Creating XMLHttpRequest Object.

COURSE OUTCOME:

- Write PHP scripts to handle HTML forms.
- Write regular expressions including modifiers, operators, and metacharacters.
- Create PHP programs that use various PHP library functions, and that manipulate files and directories.
- Analyze and solve various database tasks using the PHP language.
- Analyze and solve common Web application tasks by writing PHP programs.

TEXT BOOKS:

"The Complete Reference PHP Covers PHP5.2",McGraw Hill Education,Steven Holzner, 2008.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.
B.C.A

LAB-VI: PHP PROGRAMMING

Subject Code:	Credits: 4	External Marks: 60	Hours: 5

OBJECTIVE: To Impart Practical Training in PHP Programming Language.

EXPERIMENTS:

1. Write a program for Selecting Random Variables.

2. Develop a Program for Multiplication Table.

3. Design a Program Using string Function and Arrays.

4. Write a program Using Controls and Functions.

5. Develop a Program and Check Message Passing mechanism between Page.

6. Develop a Program Using Parsing Functions (Use Tokenizing).

7. Write a Program and Check Regular Expression HTML Functions, Hashing Function.

8. Develop a Program and Check File System Functions.

9. Design a Program Using Database Operations.

10. Develop a Program Using Cookies and session.

COURSE OUTCOME:

- Develop database-driven application using PHP and MySQL.
- Test, debug, and deploy web pages containing PHP and MySQL.

MBE – II – .NET PROGRAMMING

Subject Code:	Credits: 5	External Marks: 75	Hours: 6

OBJECTIVE: The syllabi details Concepts, Techniques and Application pertaining to
the Subject in a flexible Style. It discuss about illustrative problems to
reinforce the understanding of the Theory.

UNIT I: Introduction : C# Language – CLR –Base class Library. C# Language Reference: Identifier – Types – Variables – Expression and Operation – Statement – Inheritance – Access Modifiers – Classes and Structs – Interface – Arrays –Enum – Delegates – Events – Try statement and Exception – Attributes.

UNIT II: Programming .Net Framework: Common Types – Math – String – Collection – Regular Expression – Threading. Base Class Library Overview: Core types – Text –Collection – stream I/O – Networking – Security – Reflection – Serialization –Remoting – Web services – Data Access – XML – Graphics –Web based Application – Configuration – Assemblies – Diagostics and Debugging – Components and Tools support.

UNIT III: Developing ASP.Net Applications: ASP.Net Application – ASP.Net File Types – The Bin Directory – Application Updates – A Simple Application from Start to Finish – Code Behind – Web form Inheritance Explained – Complied code behind files – Compiled Multiple files into one Assembly – The Global.asax Code Behind – Application Events – Understanding ASP.Net Classes.

UNIT IV: Web Form Fundamentals: Server Controls – HTML Server Controls – Viewstate – The HTML Control Classes – Events – HTML Control Classes – The Page Classes – Assessing HTML Server Control – Web Control: The Basic Web Control Classes – The web Control Tag – The Web Control classes: Units – Enumerated Values – Colors – Font – List controls – AutoPostBack and Web Control Events.

UNIT V: VS.NET: The Web Form Designer – Writing Code.Validation and Rich Controls – The Calendar Control – The Adrotator – Validation. Overview of ADO.Net: Introduction – Characteristics of ADO.Net – The ADO.Net Object Model. ADO.Net Data Access: SQL Basics – SQL Select Statement – Creating Connection – Command with Data Reader – Updating a data – Accessing Disconnected data – Multiple Tables – Updating Disconnected Access.

COURSE OUTCOMES:
- Create user interactive web pages using ASP.Net.
- Create simple data binding applications using ADO.Net connectivity.
- Performing Database operations for web applications.
- Identify and resolve problems (debug /trouble shoot) in C#.NET web applications.
- Identify Industry defined problem and suggesting solution(s) using .NET application.

TEXT BOOK : "C# Essentials", Ben Albahari, Peter Drayton & Brand Merrill Shroff publishers & distributors PVT. Ltd.

"ASP.Net: The complete Reference", Matthew MacDonald, McGraw-Hill Edition 2002.

REFERENCE BOOK: C# and .Net framework – N.Manjula&S.Suresh, Charulatha Publications

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM.
B.C.A

MBE – III – DOTNET LAB

Subject Code:	Credits: 4	External Marks: 75	Hours: 6

OBJECTIVES:

- Introduce to .Net IDE Component Framework.
- Programming concepts in .Net Framework.
- Creating website using ASP.Net Controls.

EXPERIMENTS:

1. Create an ASP.Net web form for Login form using Html Server Controls.

2. Design an ASP.Net web form for Student Details.

3. Apply Validation Controls in ASP.Net web form with creation of CAPTCHA.

4. Design an ASP.Net to retrieve data from Database using Execute reader and Execute Scalar.

5. Create a web application using ADO.Net to perform basic data manipulations. Insert,Modify,Delete,View.

6. Create an application for Adrotator using XML File.

7. Create an application using Data Grid control to access information from table in SQL server.

8. College Portal.

9. Job search portal.

10. Create an application using Dropdown List to access information from table in Ms-Access/SQL server

COURSE OUTCOMES:

- Create user interactive web pages using ASP.Net.
- Create simple data binding applications using ADO.Net connectivity.
- Performing Database operations for web applications.
- Identify and resolve problems (debug /trouble shoot) in C#.NET web applications.
- Identify Industry defined problem and suggesting solution(s) using .NET application.

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
NME-I: FUNDAMENTALS OF INFORMATION TECHNOLOGY

Subject Code:	Credits: 2	External Marks: 75	Hours: 2

OBJECTIVE: To Provide the Basic Concepts in Information Technology

UNIT I: Introduction to Computers - Generation of Computers - Classification of DigitalComputer - Anatomy of Digital Computer.

UNIT II: CPU and Memory - Secondary Story Devices - Input Devices - Output Devices.

UNIT III: Introduction to Computer Software - Programming Language - Operating Systems - Introduction to Database Management System.

UNIT IV: Computer Networks - WWW and Internet - Email - Web Design

UNIT V: Computers at Home, Education, Entertainment, Science, Medicine and Engineering - Introduction to Computer Security - Computer Viruses, Bombs, Worms.

COURSE OUTCOMES:

- Understand basic concepts and terminology of information technology.

- Have a basic understanding of personal computers and their operations.

- Be able to identify issues related to information security.

TEXT BOOK:

1. Fundamentals of Information Technology, Alexis Leon And Mathews Leon,

Vikas Publishing House Pvt. Ltd, 2009.

REFERENCE BOOK:

1. Fundamentals of Computers and Information Technology, M.N Doja, 2005

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KUMBAKONAM
B.C.A
NME-II: WORKING PRINCIPLES OF INTERNET

Subject Code:	Credits: 2	External Marks: 75	Hours: 2

OBJECTIVE: To understand the working Principles of Internet

UNIT I: What is Internet? The Internet's underlying Architecture

UNIT II: Connecting to the Internet – Communicating on the Internet

UNIT III: How the World Wide Web works. Common Internet tools

UNIT IV: Multimedia on the Internet – Intranet and shopping on the

Internet

UNIT V: Safeguarding the Internet

COURSE OUTCOMES:

- Define the Internet and explain the historical developments that have led to the Internet of today.
- Illustrate how a connection to the Internet is effected and how nodes in the Internet are named and addressed.
- Describe the various services that the Internet provides.
- Evaluate the role of the World Wide Web and explain how web pages are constructed and made available over the Internet.

TEXT BOOK:

1. How the Internet Works, Preston Gralla, Pearson Education, Eighth

Edition, 2006

REFERENCE BOOK:

1. Internet for Everyone, Alexis Leon, S.Chand (G/L) & Company Ltd;

Second Edition, 2012.

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