

## **B.Sc Computer Science**

### **PROGRAMME OUTCOMES**

- Provides a good platform for learning fundamentals of computers.
- Identifying, analysing problems provides effective solutions for industry needs.
- Awareness is created to enrich the computational efficiency
- Ability to use appropriate techniques, skills, and tools necessary for computing practice.
- Ability to communicate and engage effectively with diverse stakeholders.

### **PROGRAMME SPECIFIC OUTCOMES**

- Apply basic business skills, terminologies and principles in problem solving scenarios through various hands on experiences.
- Pursue higher studies and research by exploring the various motivation factors in the computing discipline associated with the program to function efficiently and effectively in the modern and challenging society.

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR – 639 005**  
**B.Sc., COMPUTER SCIENCE - COURSE STRUCTURE UNDER CBCS SYSTEM**  
(For the candidates admitted from the year 2016 – 2017 onwards)

SEMESTER	COURSE	SUBJECT TITLE	SUBJECT CODE	INSTR. HOURS WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL	
							INT	ESE		
I	Tamil I	Tamil I	U16L1T1	6	3	3	25	75	100	
	English – I	English I	U16L1E1	6	3	3	25	75	100	
	Core Course – I	Programming in ‘C’	U16CS1C1	6	5	3	25	75	100	
	Core Course – II	‘C’ Programming Lab	U16CS1C2P	3	2	3	25	75	100	
	First Allied Course – I	Applied Mathematics – I	U16MM1A1	5	3	3	25	75	100	
	First Allied Course – II	Applied Mathematics – II	-	2	-	-	-	-	-	
	Value Education	Value Education	U16VE1	2	2	3	25	75	100	
				30	18				600	
II	Tamil II	Tamil II	U16L2T2	6	3	3	25	75	100	
	English II	English II	U16L2E2	6	3	3	25	75	100	
	Core Course II	Data Structures and C++	U16CS2C3	6	5	3	25	75	100	
	Core Course III	C++ Programming Lab	U16CS2C4P	3	2	3	25	75	100	
	First Allied Course II	Applied Mathematics – II	U16MM2A2	2	4	3	25	75	100	
	First Allied Course III	Applied Mathematics – III	U16MM2A3	5	3	3	25	75	100	
	Environmental Studies	Environmental Studies	U16ES2	2	2	3	25	75	100	
				30	22				700	
III	Tamil III	Tamil III	U16L3T3	6	3	3	25	75	100	
	English III	English III	U16L3E3	6	3	3	25	75	100	
	Core Course – IV	Programming in Java	U16CS3C5	6	5	3	25	75	100	
	Core Course V Practical	Java Programming Lab	U16CS3C6P	3	2	3	25	75	100	
	Second Allied Course I	Applied Physics I	U16PH3A1	5	3	3	25	75	100	
	Second Allied Course II	Applied Physics II Practical	-	2	-	-	-	-	-	
	Non Core Elective I	Quantitative Aptitude – I	U16MM3N1	2	2	3	25	75	100	
				30	18				600	
IV	Tamil IV	Tamil IV	U16L4T4	6	3	3	25	75	100	
	English IV	English	U16L4E4	6	3	3	25	75	100	
	Core Course V Practical	Operating System	U16CS4C7	5	5	3	25	75	100	
	Core Course VI	Shell Programming Lab	U16CS4C8P	2	2	3	25	75	100	
	Second Allied Course II	Applied Physics II Practical	U16PH4A2P	2	4	3	25	75	100	
	Second Allied Course III	Applied Physics III	U16PH4A3	5	3	3	25	75	100	
	Skill Based Elective I	Office Automation and HTML	U16CS4S1	2	4	3	25	75	100	
	Non Core Elective II	Quantitative Aptitude – II	U16MM4N2	2	2	3	25	75	100	
				30	26				800	
V	Core Course VII	Design and Analysis of Algorithms	U16CS5C9	5	5	3	25	75	100	
	Core Course VIII	Relational Database Management System	U16CS5C10	5	4	3	25	75	100	
	Core Course IX	ASP.Net	U16CS5C11	5	3	3	25	75	100	
	Core Course X	ASP.Net Programming Lab	U16CS5C12P	4	4	3	25	75	100	
	Elective Course I	Microprocessor and its Applications	U16CS5E1	5	4	3	25	75	100	
	Skill Based Elective II	Visual Basic	U16CS5S2	2	4	3	25	75	100	
	Skill Based Elective III	PHP	U16CS5S3	2	4	3	25	75	100	
	Soft Skills Development	Soft Skills Development	U16SSD3	2	2	3	25	75	100	
					30	30				800
	Core Course XI	Software Development Lab	U16CS6C13P	6	5	3	25	75	100	
	Core Course XII	Computer Graphics	U16CS6C14	6	5	3	25	75	100	
	Core Course XIII	Software Engineering	U16CS6C15	6	5	3	25	75	100	
	Elective Course II	Management Information System	U16CS6E2	5	5	3	25	75	100	
	Elective Course III	Data Communication and Networks	U16CS6E3	6	4	3	25	75	100	
Extension Activities	Gender Education	U16EA4	1	1	3	25	75	100		
	Extension Activities			1						
				30	26				600	
TOTAL				180	140				4100	

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – I SEMESTER – CORE COURSE -I

(For the candidates admitted from the year 2016 – 2017 onwards)

**PROGRAMMING IN C****Course Outcomes**

- Designed to provide complete knowledge of C language.
- Students will be able to develop logics which will help them to create programs, applications in C.
- Learning the basic programming constructs they can easily switch over to any other language in future.
- Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.

**UNIT -I**

Overview of C: History of C - Structure of C Program. Constants, variables and data types: Constants – Variables – Keywords and Identifiers – Data types - Declaration of Variables – Operators – Type Conversions in expressions – Mathematical functions.

**UNIT- II**

Managing Input & Output Operations: Reading and Writing a character - Formatted input and output – Decision making and branching: IF, IF-ELSE, Nesting of IF-ELSE – ELSE-IF-Ladder – Switch - ?:Operator – GOTO. Decision Making and Looping: WHILE –DO, DO-WHILE , FOR – JUMPS IN LOOPS.

**UNIT- III**

Arrays: One dimensional Arrays – Two dimensional Arrays – Multi dimensional Arrays- Character Array and Strings: Declaring Initializing String Variables – String-Handling Functions. User-defined functions: Definition of Functions- Return values and their types – Function calls and declaration – Category of functions- Nesting of Functions – Recursion – Passing Arrays to Function.

**UNIT- IV**

Structures and Unions: Defining a structure – Declaring structure variables – Arrays within structures – Structure within Structure – Structures and Functions – Unions. Pointers: Introduction – Declaring Pointer variables – Initializing Pointer Variables – Pointers to functions- Pointers and Structures.

**UNIT V**

File Management: Introduction – Defining, Opening and Closing a file – Input Output Operations on files – Files with structures and Unions. Sample file programs (Student mark statement, employee pay bill) – Preprocessors: Preprocessors and Macros.

**TEXT BOOK**

1. Programming in ANSI C, E. Balgurusamy Tata McGraw Hill, New Delhi, 4<sup>th</sup> Edition

**REFERENCE BOOKS**

1. “Programming with C “ – Byron S. Gottfried – Schaum’s outline Series - Tata McGraw Hill publications
2. “ Let Us C “ – Yashawanth kanetkar – BPB publications.

Sl. No.:

Subject Code:

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – I SEMESTER – CORE COURSE - II

(For the candidates admitted from the year 2016 - 2017 onwards)

**‘C’ Programming Lab**

**Course Outcomes**

- Learn how to use the c tokens in c program.
  - Implement the basic mathematical calculations.
  - Gain the knowledge of user-defined functions.
  - Understand the working function of File management concept.
- 
1. Write a C program to find solution of quadratic equations.
  2. Write a C program to sort the given numbers in Ascending and Descending order using Arrays.
  3. Write a C program to sort the names in Alphabetical order.
  4. Write a C program to find the sum of Exponential Series.
  5. Write a C Program for Matrix Addition and Subtraction of two 3X3 matrix.
  6. Write a C program for Matrix Multiplication of two 3X3 matrix.
  7. Write a C program for finding factorials of a given number using function.
  8. Write a C program to generate Fibonacci numbers using recursive functions.
  9. Write a C program for String Manipulations without using String functions(String length, Palindrome checking)
  10. Write a C Program to solve the given equation using Bisection Method.
  11. Write a C program to solve the given equation using Trapezoidal rule.
  12. Write a C program to solve the given equation using Euler’s method.
  13. Write a C program to find the length of a given string using pointers.
  14. Write a C program for Student Marklist Preparation. (Use structures for record description)
  15. Write a C program for file Creation and file accessing.

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## GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05

B.Sc., – I SEMESTER – FIRST ALLIED COURSE – I

(FOR COMPUTER SCIENCE MAJOR)

(For the candidates admitted from 2015 – 2016 onwards)

APPLIED MATHEMATICS - I

(ALGEBRA AND CALCULUS)

### Course Outcomes

On successful completion of the course, the students will be able to

- Forming the equations with the given roots and solving an algebraic equation by using the relation between roots and coefficients
- Understand the concept of matrices
- Find the maxima and minima of function of one variable and two variables
- Understand the concept of Fourier series

UNIT 1: Theory of Equation: Relation between roots and coefficients - Transformation of equation - Diminishing, Increasing & Multiplying the roots by a constant – Forming equations with the given roots – Rolle’s theorem, Descartes rule of signs (statement only) - Simple problems.

UNIT 2: Singular matrices – Inverse of a non-singular matrix using Adjoint method - Rank of a matrix - Consistency – Characteristic equation – Eigen values, Eigen Vectors – Cayley Hamilton theorem (Proof not needed) - Simple applications only.

UNIT 3: Differentiation – Maxima & Minima - Concavity – Convexity – Points of inflexion - Partial differentiation – Euler’s theorem - Total Differential coefficient (proof not needed) - Simple problems only.

UNIT 4: Evaluation using integration by parts - Properties of definite integrals – Fourier series in the range  $(0, 2\pi)$  &  $(-\pi, \pi)$  - Odd & Even functions - Fourier Half Range Sine and Cosine series.

UNIT 5: Differential Equations: Variables Separable - Linear equations - Second order of types  $aD^2 + bD + cy = F(X)$  where a, b, c are constants and F(X) is one of the following types (i)  $e^{kx}$  (ii)  $\sin kx$  (or)  $\cos kx$  (iii)  $x^n$ , n being an integer (iv)  $e^{kx} f(x)$ .

### TEXT BOOKS:

1. T. K. Manickavasagam Pillai & Others, “Algebra Vol. I”, S.V. Publications, 2010 Revised Edition (Units I, II)
2. S. Narayanan, T. K. Manickavasagam Pillai, “Calculus Vol. II”, S.V. Publications, 2003 (Units III, IV, V)

### REFERENCE BOOKS:

1. M. L. Khanna, “Differential Calculus”, Jaiprakashnath and Co. Meerut – 2004.
2. P. Kandasamy, K. Thilagavathy, “Allied mathematics”, S. Chand & Co. Ltd., 2010.

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**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – II SEMESTER – CORE COURSE - III

(For the candidates admitted from the year 2016 - 2017 onwards)

**DATA STRUCTURES AND C++**

**Course Outcomes**

- To remember the concepts of array, stack and queue
- Learns the concept of binary tree traversal.
- To know the basic concepts of OOPS.
- Various data types, operators and functions are used in C++.

UNIT – I • Inheritance and Polymorphism concepts are explained.

Arrays: axiomatization-ordered lists-representation of arrays- stacks and queues: fundamentals – evaluation of expressions- linked lists: singly linked list- linked stack and queues.

UNIT – II

Trees: basic terminology-binary trees-binary tree representation - binary tree traversal – Graphs :terminology and representation – traversals connected component and spanning trees – Internal sorting : searching- insertion sort -quick sort-heap sort.

UNIT – III

Principles of Object Oriented Programming – Tokens expressions and control structures – functions in C++

UNIT – IV

Classes and objects – constructors and destructors – parameterized constructors – multiple constructors in a class – constructors with default arguments – destructors – operator overloading and type conversions :Defining operating overloading-overloading unary operators – overloading binary operators.

UNIT – V

Inheritance: Extending classes: introduction – defining derived classes – single inheritance – making a private member inheritable – multilevel inheritance – multiple inheritance – hierarchical inheritance – hybrid inheritance – pointers, virtual function and polymorphism: pointers to objects – this pointer – managing console I/O operations: C++ streams – C++ streams classes – unformatted I/O operations.

TEXT BOOKS

- 1) Fundamentals of Data Structures by Ellis Horowitz – Galgotia Booksourree
- 2) Object oriented programming with C++ by E.Balagurusamy – 2<sup>nd</sup> Edition TMH

REFERENCE BOOKS:

1. “Let us C++” – Yashwant Kanetkar – BPB Publications, 1999.
2. “Programming with C++” – John R.Hubbard – Schaum’s outline series, 1996.
3. Data structures – Lipschutz, TMH, Schaums outline series

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**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – II SEMESTER – CORE COURSE - IV  
(For the candidates admitted from the year 2016 - 2017  
onwards)

**C++ PROGRAMMING LAB**

**Course Outcomes**

- To gain the knowledge of C++, is compared with C.
- To know how to write inline, friend and static functions in efficient manner.
- To learn the concepts of inheritance types.
- To understand the overloading concepts in operator and functions.
- To implement the stack and queue operations in C++.

1. Write a C++ program to create a Student Class
2. Write a C++ program to implement constructors and destructors
3. Write a C++ program to implement Matrix Manipulation
4. Write a C++ program using friend and static function
5. Write a C++ program using operator overloading
6. Write a C++ program using function overloading
7. Write a C++ program to implement multiple inheritance
8. Write a C++ program to implement multilevel inheritance
9. Write a C++ program to implement Hierarchical inheritance
10. Write a C++ program to implement Hybrid inheritance
11. Write a C++ program to using string functions.
12. Write a C++ program to implement stack using array
13. Write a C++ program to implement queue using linked list
14. Write a C++ program to sort N numbers using quick sort
15. Write a C++ program for insertion sort

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc., –II SEMESTER – FIRST ALLIED COURSE - II  
(FOR COMPUTER SCIENCE MAJOR)  
(For the candidates admitted from 2016 - 2017  
onwards)

### **APPLIED MATHEMATICS - II (NUMERICAL METHODS)**

- UNIT 1: Solution of Algebraic and Transcendental Equations: Bisection method – Regula falsi method – Newton Raphson Method – Iteration Method – Simple Problems.  
(Ch. 3: § 3.1 - 3.4)
- UNIT 2: Solution of Simultaneous Linear Algebraic Equations: Gauss-Elimination Method – Gauss-Jordan Method – Gauss-Jacobi method – Gauss-Seidal Method.  
(Ch. 4: § 4.1 - 4.4, 4.8, 4.9)
- UNIT 3: Interpolations: Linear interpolation – Gregory – Newton forward and backward interpolation formula – Lagrange interpolation formula (for unequal intervals).  
(Ch. 6: § 6.1 - 6.3 & Ch 8: § 8.1 - 8.7)
- UNIT 4: Numerical Differentiation and Integration: Newton's formula to compute derivative – Numerical Integration – A General Quadrature formula – Trapezoidal Rule - Simpson's 1/3<sup>rd</sup> Rule – Simpson's 3/8<sup>th</sup> rule.  
(Ch. 9: § 9.1 to 9.3, 9.7 - 9.9, 9.13, 9.14)
- UNIT 5: Numerical Solutions of ODE – Taylor's series Method – Euler Method – Second order and Fourth order Runge-Kutta Methods – Predictor and Corrector methods – Milne's predictor – Corrector formula.  
(Ch.11: § 11.6, 11.7, 11.9, 11.12 - 11.17)

#### **TEXT BOOK:**

1. P.K. Kandasamy, K. Thilagavathi & K. Gunavathi, "Numerical Methods", S. Chand & Co Ltd . II<sup>nd</sup> Revised Edition 2003.

#### **REFERENCE BOOKS:**

1. S. S. Sastry, "Introductory Methods of Numerical Analysis", Prentice Hall of India Pvt. Ltd., New Delhi, Third Edition, 2002.
2. M. K. Venkataraman, "Numerical Methods in Science and Engineering", National Publishing Company, 2007.

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U16MM2A3

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc., –II SEMESTER – FIRST ALLIED COURSE - III  
(FOR COMPUTER SCIENCE MAJOR)  
(For the candidates admitted from 2016 - 2017  
onwards)

**APPLIED MATHEMATICS - III**  
(OPERATIONS RESEARCH)

- UNIT 1: Operations Research: Introduction – Role of computers in O.R – Linear Programming formulation - Graphical solution of two variables – Canonical and standard forms of Linear Programming Problems.  
(Ch. 1: § 1.1, 1.2, 1.6, 1.8, Ch 2: §2.1-2.6)
- UNIT 2: Simplex Methods – Algorithms – Simplex Method for  $\leq$ ,  $\geq$  Constrains – Big M Method – Two Phase Method.  
(Ch. 3: § 3.1 - 3.5)
- UNIT 3: Transportation Problems: Algorithms – Degeneracy in Transportation Problem – Unbalanced Transportation Problem – Assignment Problem– Algorithms – Unbalanced Assignment Problem.  
(Ch. 6: § 6.1, 6.2, 6.4, 6.5, 6.7, 6.9, Ch7: §7.1-7.3)
- UNIT 4: Sequencing Problems: Problem with n jobs and two machines – Problems with n jobs and three machines.  
(Ch. 10: § 10.1-10.4)
- UNIT 5: Network – Fulkerson’s rule – CPM-PERT Calculations.  
(Ch. 21: § 21.1 - 21.7)

**TEXT BOOK:**

1. Kantiswarup, P.K. Gupta & Manmohan, “Operations Research”, Sultan & Chand Publishers, New Delhi, 2014.

**REFERENCE BOOK:**

1. Hira and Gupta, “Operations Research”, S.Chand & Co. Ltd., 1999.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – III SEMESTER – CORE COURSE -V

(For the candidates admitted from the year 2015-16 onwards)

### **PROGRAMMING IN JAVA**

#### **Course Outcomes**

- To build software development skills using java programming for real world applications.
- To understand the importance of Classes & objects along with constructors, Arrays, Vectors and Applet.
- Have the ability to write a JAVA program to solve specified problems.
- To understand how to design applications with threads in Java.
- To know about compiler generation tools and techniques.

#### **UNIT – I**

Fundamentals of Object Oriented Programming – Java Evolution – Java history – Java features – Java environment – Overview of Java Language – Constants, Variables and Data Types – Operators and Expressions.

#### **UNIT – II**

Decision making and Branching – Decision making and Looping – Classes, Objects and Methods – Defining a class – Adding variables and method – Creating objects – Accessing class members – Constructors – Method overloading – Nesting of methods – Inheritance – Method overriding – Visibility control.

#### **UNIT – III**

Arrays, Strings and Vectors – Interface – Defining interface – Extending interface – Implementing interface – Accessing interface variable – Packages – Java API packages – Using system package – Naming conventions – Creating packages – Accessing a package – Using a package – Adding a class to a package – Hiding classes.

#### **UNIT – IV**

Multithreaded programming – Creating threads – Extending the thread class – Stopping and blocking a thread – Life cycle of a thread – Thread methods – Thread priorities – Synchronization – Implementing the Runnable interface – Managing errors and Exceptions – Types of exception – Try and catch – Multiple catch – Finally.

#### **UNIT – V**

Introduction – Applet code – Applet life cycle – Applet Tag – Web page designing – Running the applet – More about applet tag – Passing parameters to Applets. Managing I/O files – Streams – Stream classes – Byte streams – Character streams – Using stream – I/O classes and file class – Creating file – Reading /Writing characters and bytes – Handling primitive data types.

#### **TEXT BOOK:**

1. Programming with Java “ E.Balagurusamy “ TMH

#### **REFERENCE BOOK:**

1. Java 2 Complete Reference, Herbert Schildt, Tata McGraw Hill, 4<sup>th</sup> Edition 2001.

Sl. No.:

Subject Code:

U16CS3C6P

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – III SEMESTER – CORE COURSE -VI

(For the candidates admitted from the year 2015-16 onwards)

JAVAProgrammingLab

**Course Outcomes**

- Be able to use the Java SDK environment to create, debug and run simple Java programs.
- Acquire knowledge to implement object-oriented designs with Java.
- To extend Java classes with inheritance and packages.
- Deploying exception handling in Java applications.
- Inculcate the skill how to read and write files in Java.

1. Program to implement looping statements.
2. Program to implement simple classes to understand objects, member functions.
3. Program to implement constructors.
4. Program to implement array and Vectors.
5. Program to implement String Handling.
6. Program to implement Inheritance.
7. Program to implement method overloading.
8. Program to implement method overriding.
9. Program to develop User defined Packages in Java.
10. Program to implement Interfaces.
11. Program to implement Multi Threading.
12. Program to implement Exception Handling Mechanism in Java.
13. Program to implement Applet class.
14. Program to implement copying characters from one file to another.
15. Program for reading and writing primitive data.

Sl. No:

Subject Code:

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**  
**B.Sc., III SEMESTER – SECOND ALLIED COURSE – I**  
**(FOR COMPUTER SCIENCE MAJOR)**  
(For the candidates admitted from the year 2016 - 2017  
onwards)

**APPLIED PHYSICS-I**

**Course outcomes:**

1. The study of electric field in static equilibrium.
2. Magneto statics is used in applications of magnetic storage devices.
3. To discuss the Current electricity is the most important in electrical and electronic technology.
4. Electromagnetic induction to give a knowledge of how the kinetic energy change into electrical energy.
5. An Alternating current circuit is the major advantage to transmit safer voltage for commercial and residential use.

**UNIT –I: ELECTROSTATICS**

Definitions: Electric field, electric potential, lines of force - Coulomb's law - Gauss theorem - Electric intensity due to a charged sphere - Electric intensity due to a uniformly charged cylinder - Mechanical force on surface of a charged conductor - Principle of capacitors – Capacitors in series and parallel – Capacitance of a cylindrical capacitor - Energy stored in a charged capacitor - Loss of energy due to sharing of charges.

**UNIT – II: MAGNETO STATICS**

Magnetic field - Magnetic induction - Intensity of magnetization - Permeability - Susceptibility - Magnetic shell - Potential at any point due to a magnetic shell - Properties of Para, dia, and ferromagnetic materials – Hysteresis - B-H curve by Magnetometer method - Energy loss due to Hysteresis.

**UNIT – III: CURRENT ELECTRICITY**

Laplace's law - Magnetic intensity at a point due to a straight conductor carrying current - Magnetic intensity at a point along the axis of a circular coil carrying current - Kirchoff's law - Wheatstone's network - Carey foster's bridge - Determination of Specific Resistance - Potentiometer - Calibration of low range voltmeter - Ammeter calibration - Moving coil ballistic galvanometer.

**UNIT – IV: ELECTROMAGNETIC INDUCTION**

Laws of electromagnetic induction - Faraday's law - Fleming's right hand rule - Self Induction of a long solenoid - Determination of Self Inductance by Anderson's method - Mutual inductance - Determination of mutual inductance between two coaxial solenoids - coefficient of coupling - Eddy currents and its applications.

**UNIT – V: A.C CIRCUITS**

AC circuit: containing Resistor only- Inductor only - Capacitor only - LR series - AC circuit containing LCR in series - Resonant frequency - The Q-factor - Principle of choke coil - Skin effect - Power factor in ac circuit with L and R - Wattles current – Discharge of a capacitor through LR.

**BOOKS FOR STUDY:**

1. Brij Lal and N .Subramaniam, Electricity and Magnetism - Ratan Prakashan Mandir, New Delhi 1995.
2. R. Murugesan, Electricity and magnetism - S. Chand & company, Fourth Revised Edition 2002.
3. A.sundaravelusami, Applied physics.

**BOOKS FOR REFERENCES:**

1. Narayanamurthy and Nagarathinam, Electricity and Magnetism.
2. D L Seghal and Chopra, Electricity and magnetism.

Sl. No.:

Subject Code:

U16MM3N1

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc., - III SEMESTER – NON CORE ELECTIVE – I  
(FOR COMPUTER SCIENCE MAJOR)  
(For the candidates admitted from 2015 – 2016 Onwards)

QUANTITATIVE APTITUDE – I

**Course Outcomes (Co)**

On successful completion of the course, the students will be able to

- Understand the concept of HCF and LCM
- Understand the concept of decimal fractions
- Understand the concept of profit and loss
- Understand the concept of average and age problems

UNIT 1: Numbers – HCF – LCM – Problems on numbers.

(Ch. 1, 2 & 7)

UNIT 2: Decimal Fractions and Simplification.

(Ch. 3 & 4)

UNIT 3: Surds and Indices – Percentage – Profit and Loss.

(Ch. 9, 10 & 11)

UNIT 4: Ratio and Proportion – Partnership – Allegation or Mixture.

(Ch. 12, 13 & 20)

UNIT 5: Average – Problems on Age.

(Ch. 6 & 8)

TEXT BOOK:

1. R. S. Aggarwal, “Quantitative Aptitude”, S. Chand & Company Ltd., Ram Nagar, New Delhi, 2007.

REFERENCE BOOK:

1. Abhijit Guha, “Quantitative Aptitude for Competitive Examinations”, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2008.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – IV SEMESTER – CORE COURSE - VII

(For the candidates admitted from the year 2016 - 2017 onwards)

### **OPERATING SYSTEM**

#### **Course Outcomes**

- Understand the basic concept of operating system.
- They gain knowledge of scheduling algorithms and deadlock concept.
- They become be familiar with memory management technique and also in file management concept.
- Enlighten the installation of Linux operating system and explain the tools that are used in Linux platform.
- They learn about the security features and firewall settings in Linux platforms.

#### **UNIT- 1**

Operating system objectives and function – operating system and user/computer interface, operating system as a resources manager: evaluation of operating system – serial processing sample batch system, time sharing system. Process decryption, process control – process and threats. Concurrency – principles of concurrency. Deadlock – deadlock prevention, dead lock detection, Deadlock Avoidance – An Integrated deadlock strategy.

#### **UNIT- II**

Memory management requirements- fixed partitioning placement algorithm, reallocation in paging system –sample segmentation. Virtual memory-paging-address translation in a paging system. Segmentation - organization, address translation in a segmentation system-combined paging and segmentation-Virtual memory-operating system-operating system software-fetch policy, placement policy and replacement policy, page buffering resident set management.

#### **UNIT -III**

Scheduling-Types of scheduling, scheduling algorithms, scheduling criteria, FIFO, Round Robin, Shortest Path next, shortest remaining time, highest response ration and feedback scheduling performance comparison-fair-share scheduling. File management-files, file management systems, file system architecture, function of file management file directories-file sharing-secondary storage management-file allocation.

#### **UNIT- IV**

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications Installing Red Hat Linux Applications, Running Window Application, Running Window, DOS and Macintosh Applications –Tools for using Internet and Web.

#### **UNIT- V**

Administration: Understanding System Administration: Root login-super user-GUI tools, commands and Log files-Configuring Hardware-File System and Disk Management- Monitoring performances. Setting Up and Supporting users: Creating user accounts – Setting user defaults –Creating Desktops - Modifying and Deleting Accounts. Security Issues: Hacker versus Cracker-Password Protection-Protection from break-in-Filtering Network Access-Firewalls-Detecting Instructions – Encryption techniques

#### **TEXT BOOKS:**

1. William Stallings, “Operating System”, Second edition, Maxwell McMillan, International Editions 1997.
2. Christopher Negus “Red Hat Linux 9 Bible”, WILEY- Dreamtech India Pvt.Ltd, New Delhi, First Edition, 2003

#### **REFERENCE BOOKS:**

1. Dental H.M. “An Introduction to Operating Systems”,Addison Wesley Publishing Co.1998.
2. Thomas Schenk, “Red Hat Linux System Administration”, Techmedia, New Delhi,2003.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – IV SEMESTER – CORE COURSE - VIII

(For the candidates admitted from the year 2016 - 2017  
onwards)

### **SHELL PROGRAMMING LAB**

#### **Course Outcomes**

- They have ability to do shell program in Linux platform.
- Understand and run commands on standard operating system.
- Understand and handle Linux system operation.
- Scripts are demonstrated with simple user interface.
- They have skill to read and write shell script after complete this course.

Write Shell Programs for the following using the Linux Operating System

1. To demonstrate basic Linux commands
2. Shell Script Program to Print Student Mark Sheet
3. Shell Script Program to find Greatest of 3 numbers
4. Shell Script Program to whether year is Leap year or not
5. Shell Script Program to find whether the given number is Prime or not
6. Shell Script Program to print Armstrong no's from 1-1000
7. Shell Script Program to find Factorial of a number
8. Shell Script Program to print the Fibonacci series
9. To check whether the number is palindrome or not
10. Using case.. esac structure
  - a. Find the number of users logged into the system
  - b. Print the calendar for current year
  - c. Print the date
11. Shell Script Program to check whether given file is a directory or not
12. Shell Script Program to Count number of files in a Directory
13. Shell Script Program to implement read, write, execute permissions
14. Shell Script Program to copy contents of one file to another
15. Demonstrate filter commands

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR -05

B.Sc., – IV SEMESTER – SECOND ALLIED COURSE – II

(FOR COMPUTER SCIENCE MAJOR)

(For the candidates admitted from the year 2016 - 2017 onwards)

APPLIED PHYSICS – II – LAB

(Any fifteen experiments)

**Course Outcomes:**

1. Explain the characteristics and applications of operational amplifier
  2. Verify FET and its characteristics
  3. Design circuits using universal gates such as NAND and NOR
  4. Design and verify truth tables of adder, subtractor.
- 
1. Series and Parallel resonance circuit.
  2. FET – Characteristics.
  3. Transistor Characteristics – CE Configuration.
  4. Transistor Characteristics – CB Configuration.
  5. Bridge Rectifier and Zener controlled regulated power supply.
  6. Field along the axis of a coil – Determination of  $B_H$  value.
  7. Field along the axis of a coil – M.
  8. Potentiometer – Measurement of specific resistance.
  9. Potentiometer – Ammeter Calibration.
  10. Carey Foster's Bridge – Specific resistance.
  11. Calibration of a thermistor and determination of its Energy gap.
  12. R-C Coupled amplifier.
  13. Hartley Oscillator using transistor.
  14. Astable multivibrator using IC.
  15. Adder and subtractor using op – amp.
  16. Integrator and differentiator using op – amp.
  17. Half adder and Half subtractor using gates.
  18. NAND and NOR as universal building blocks.
  19. Flip Flop using IC gates.
  20. Verification of De Morgan's theorem.

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## GOVERNMENT ARTS COLLEGE (AUTONOUOMS) KARUR-05

B.Sc., – IV SEMESTER – SECOND ALLIED COURSE – III

(For the candidates admitted from the year 2016 - 2017 onwards) (FOR COMPUTER SCIENCE MAJOR)

### APPLIED PHYSICS-III

#### Course Outcomes:

1. Have a basic knowledge of semiconductor diode, rectifier and filter circuits.
2. Understand transistor biasing and working principle of Amplifiers.
3. Explain feedback and oscillatory circuits.
4. Comprehend the operation and characteristics of FET and UJT.
5. An idea about operational amplifiers.
6. Understand the laser action phenomena, properties and applications of laser.

#### UNIT-I: SEMICONDUCTOR PHYSICS

Theory of energy bands in crystals - Distinction between conductors, insulators and semiconductors-Intrinsic and Extrinsic Semiconductor - n-type and p-type semiconductor - Formation of pn Junction - Junction Diode -V-I characteristics -Rectifiers -Half wave & bridge rectifier - Zener diode -V-I characteristics – Zener diode voltage regulator -Hall Effect - Determination of Hall coefficient.

#### UNIT-II : TRANSISTORS

Transistor action: NPN & PNP-Transistor characteristics CE and CB configuration - Hybrid parameters-Amplifier-Single Stage RC Coupled Amplifier - Principle of feedback - Negative feedback - Gain of negative voltage amplifier - Oscillator - Hartley oscillator.

#### UNIT-III: SPECIAL DEVICES

FET - Construction – n-channel and p channel - Characteristics - FET parameters – FET amplifier (CS configuration) - UJT characteristics - LED -Materials for LED - LED configuration and performance - Photo conduction - Photo Diode - Photo Transistor - Digital clock - Seven segment display - LCD.

#### UNIT-IV: OPERATIONAL AMPLIFIER

Definition of op-amp - Characteristics, parameters - Inverting and Non-inverting operational amplifiers - Adder - Subtractor - Sign changer - Scale changer Differentiator and Integrator - D/A binary weighted method - R-2R Ladder method - A/D successive approximation - Counter type method - op-amp as a comparator.

#### UNIT-V: LASER

Laser Principle - Theory of stimulated emission and Population Inversion - Optical Pumping -Derivation of Einstein's A and B coefficients - Properties of Laser - Ruby laser -He-Ne and semiconductor lasers - Applications of laser in materials processing-Lasers in welding, drilling, heat treatment.

#### BOOK FOR STUDY:

1. P. K .Palanisamy, Semiconductor physics And Opto -Electronics Scitech publications (India) Pvt .Ltd.
2. V.K. Metha &Rohit Metha, Principle of Electronics –S. Chand & Co.
3. Dr. M. Arumugam, Applied Physics –Anuradha Agencies.
4. B.B. Laud, Laser and optics –New Age International Publications.
5. A.Sundaravelusami, Applied physics.

#### BOOKS FOR REFERENCES

1. Jacob, Micro Electronics- McGraw Hill.
2. Theraja, The fundamentals of solid state physics - Sultan chand & Co.
3. GK Mithal and Vanvasi, Pulse and digital electronics - Khanna Publications-Delhi.
4. Ramanan, Functional Electronics - TMH-1994.
5. Milmann and Halkins, Electronic Devices and circuits - TMH 1991.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – IV SEMESTER - SKILL BASED ELECTIVE - I

(For the candidates admitted from the year 2016 - 2017 onwards)

### OFFICE AUTOMATION AND HTML

#### **Course Outcomes**

- To familiarize the students in preparation of documents and presentations with office automation tools.
- Use critical thinking skills to design and create websites.
- Students will create documents that demonstrate proficiency in the use of word processing, spreadsheet, database, and presentation applications.

#### UNIT – I

MS Word – Starting Word – Parts of Word Window – Mouse and Keyboard Operations - Menus, Commands, Toolbars and their Icons – Creating Word Documents – Editing Word Documents – Inserting Objects - Formatting Documents - Working with Tables – Mail Merge. MS Excel - Introduction - Entering and Editing text, Numbers, Formulas and Date - Menus, Commands, Toolbars and their Icons – Inserting rows and columns- Building Worksheets – Creating and formatting charts – Application of Financial and Statistical functions.

#### UNIT – II

MS PowerPoint: Introduction – Menus, Toolbar and Navigating in PowerPoint. MS Access: Introduction – Parts of an Access Window: Starting MS Access – Creating a New DataBase – Creating a Database through Table Wizard – Creating a New Table – Rename Columns – Saving the Database – Relationship – Creating Table through Design View – Relationship – Query – Form – Report – Exiting MS Access.

#### UNIT – III

Introduction To HTML: Designing a Home Page – HTML Documents – Anchor Tag – Hyper Links – Head and Body Section: Header Section – Title – Links – Colorful Web Page – Comment Lines – Designing the Body Section: Heading Printing – Aligning The Headings – Horizontal Rule – Paragraph – Tab Settings – Images and Pictures.

#### UNIT – IV

Ordered and Unordered Lists: Lists – Unordered Lists – Heading in a List – Ordered Lists – Nested Lists – Table Handling: Table – Table Creation in HTML – Width of the Table and Cells – Cells Spanning Multiple Rows/Columns – Coloring Cells – Column Specification.

#### UNIT – V

Frames: Frameset Definition – Frame Definition – Nested Framesets – Forms: Action Attribute – Method Attribute – Enctype Attribute – Drop Down List.

#### TEXT BOOKS:

1. MS Office 2000 – Sanjay Saxena, Vikas Publishing House
2. World Wide Web Designing, C.Xavier, Tata McGraw Hill, 2000.

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**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B. Sc., – IV SEMESTER – NON CORE ELECTIVE – II  
(FOR COMPUTER SCIENCE MAJOR)  
(For the candidates admitted from 2015 – 2016 onwards)

QUANTITATIVE APTITUDE – II  
**Course Outcomes (Co)**

On successful completion of the course, the students will be able to

- Understand the concept of chain rule
- Understand the concept of simple interest and compound interest
- Understand the concept of boats and streams
- Understand the concept of data interpretation

UNIT 1:	Chain Rule – Time –Work and Wages – Pipes and Cisterns	(Ch. 14, 15 & 16)
UNIT 2:	Simple Interest – Compound Interest – Logarithm.	(Ch. 21, 22 & 23)
UNIT 3:	Time and Distance – Trains – Boats and Streams	(Ch. 17, 18 & 19)
UNIT 4:	Area – Volume and Surface Area of Solid Figures – Clocks.	(Ch. 24, 25 & 28)
UNIT 5:	Data Interpretation – Tabulation – Bar Graphs – Pie Charts – Line Graph.	(Ch. 36, 37, 38 &39)

TEXT BOOKS:

1. R. S. Aggarwal, “Quantitative Aptitude”, S. Chand & Company Ltd., Ram Nagar, New Delhi, 2007.

REFERENCE BOOKS:

1. Abhijit Guha, “Quantitative Aptitude for Competitive Examinations”, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2008.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – CORE COURSE - IX

(For the candidates admitted from the year 2016 - 2017 onwards)

### DESIGN AND ANALYSIS OF ALGORITHMS

#### **Course Outcomes**

- A set of steps to accomplish or complete a task that is described precisely enough that a computer can run it. For the analysis, we frequently need basic mathematical tools.
- Divide the problem instance into two or smaller instances of the same problem, solve the smaller instances recursively, and assemble the solutions to form a solution of the original instance.
- A Generalized Greedy Algorithm with Applications in Optimization. Since Greedy is very fast, it can be used to solve very large problems.
- The algorithm is a dynamic programming algorithm which solves both the problem of minimizing system execution time.
- Here, a symbolic execution framework is utilized to achieve test target coverage for control system software. The framework does not ensure optimal feasible paths after backtracking.

#### UNIT-I

Introduction: Algorithm definition and specification –Performance analysis – Elementary Data structures: Stacks and Queues –Trees- Dictionaries –Priority queues- Sets and Disjoint set union-Graphs-Basic Traversal and Search techniques.

#### UNIT-II:

Divide and Conquer: General method –Binary search-Finding the Maximum and Minimum –Merge sort –Quick sort-Selection –Strassen’s Matrix Multiplication-Convex Hull.

#### UNIT-III

The Greedy Method: The General Method-Knapsack problem-Tree Vertex Splitting-Job Sequencing with Deadlines-Minimum cost spanning trees-Optimal storage on tapes-Optimal merge patterns-Single source shortest path.

#### UNIT-IV

Dynamic programming: The general method-Multistage graphs-All pair’s shortest paths-Single source shortest paths-Optimal binary search trees-String editing-0/1 Knapsack-Reliability Design-The Traveling salesman problem-Flow shop scheduling.

Basic Traversal and Search Techniques: Techniques for Binary trees-Techniques for Graphs-Connected components and Spanning Trees-Bi-connected components and DFS.

#### UNIT-V

Backtracking: The general method-The 8- Queens Problem-Sum of subsets-Graph coloring-Hamiltonian Cycles-Knapsack problem.

#### TEXT BOOKS

1. Ellis Horowitz, Sartaj Sahni, S.Rajasekaran,” Fundamentals of Computer Algorithms”, Galgotia, 2003.

#### REFERENCE BOOKS

1. S. Lakshmivarahan, Sundarshan, K. Dhall,”Analysis and Design of Parallel Algorithms”.
2. Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman,”Data Structures and Algorithms”.
3. Wiley, Goodrich “Data Structures & Algorithms in Java”, 3rd edition.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – CORE COURSE - X

(For the candidates admitted from the year 2016 - 2017 onwards)

### **RELATIONAL DATABASE MANAGEMENT SYSTEM**

#### **Course Outcomes**

- To learn the objectives of file system Vs database systems.
- To understand the knowledge of Data Models, E-R diagram and Relational algebra.
- To develop the knowledge for writing SQL queries and Triggers.
- To know the concepts in Types of Normalization and File Organization.
- To gain the knowledge of Hashing and Indexing.

#### **UNIT- I**

Introduction – File and Database System – Data Abstraction – Instances and Schemas – Database Languages – Database System Structure – Database Administrator.

#### **UNIT- II**

Data Models – E-R- Diagram – Key Constraints – Weak Entity set and Strong Entity set – Extended ER features – ER diagram with relationships – Aggregate Functions – Relational Algebra – Relational Calculus

#### **UNIT- III**

SQL – Data Definition – Queries in SQL – Nested Sub queries – Modification of the Database – Views – Joined Relations – Embedded SQL – Dynamic SQL – Security and Authorization – Triggers.

#### **UNIT- IV**

Normalization – Types of Normalization – File organization – Organization of Records in files – Operations on Files – Heap Files – Sorted Files – Hashing Techniques – Dynamic Hashing – Indexing – B+ Tree Index Files – B tree Index Files.

#### **UNIT -V**

Transaction – Transaction Processing – Concurrency control – Object Oriented Database – Object Oriented Data Model – Inheritance – XML – Distributed Databases – Transparency – Data Mining – Data Warehousing.

#### **TEXT BOOK:**

1. Abraham Silberschatz, Henry F.Korth and Sudarshan, “Database System Concepts”, Fourth Edition, McGraw-Hill, 2002.

#### **REFERENCE BOOKS:**

1. Ramez Elmasri and Shamkant B.Navathe, “Fundamental Database System”, Third Edition, Pearson Education, 2003.
2. Raghu Ramakrishnan, Database Management System”, Tata McGraw-Hill, 2003.
3. Hector Garcia, Molina, Jeffrey D.Ullman and Jennifer Widom, “ Database System Implementation”, Pearson Education, 2000.
4. Alexis Leon and Mathews Leon, “Database Management Systems”, Vikas Publishing House Pvt Ltd, New Delhi, 2002.

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Subject Code:

U16CS5C11

## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – CORE COURSE - XI

(For the candidates admitted from the year 2016 - 2017 onwards)

### **ASP.NET Programming**

#### **Course Outcomes**

- Understanding the Microsoft .NET Framework and ASP.NET Languages.
- Create and access local host server on application.
- Design a web application with variety of controls.
- Access the data using inbuilt data access controls.
- Using Microsoft ADO.NET to access data in web Application.

#### **UNIT - I**

The .NET frame work: The .NET Programming framework, The Common Languages Runtime, The .NET Class Library, ASP.NET, Visual Studio .NET. Learning the .NET Languages: The .NET Languages, Data types, Declaring Variables, Scope and Accessibility, Variable Operations, Object-Based Manipulation, Conditional Structure, Loop Structure, Function and Subroutines.

#### **UNIT - II**

Types, Objects and Namespace: The Basics About Classes, Value Types And Reference, Understanding Name Spaces and Assemblies. Setting up ASP.Net and IIS: IIS manager, ASP.NET Application: -ASP.NET Application, Code Behind.

#### **UNIT- III**

Web Form Fundamentals: A Simple Page Applet, Improving The Currency Converter, Deeper Look At HTML Control Classes, The Page Class. WEB Controls: Stepping Up To Web Controls, Web Control Classes, Auto Post Back And Web Controls Events, A Simple Web Page Applet.

#### **UNIT- IV**

Using Visual Studio .NET: The Promise of Visual Studio .NET, Starting A Visual Studio .NET Project, The Web Form Designer, Writing Code, Visual Studio .NET Debugging. Validation and Rich Controls: The Calendar Control – The AdRotator – Validation – Validator Process – Validation Classes.

#### **UNIT - V**

ADO.NET Data Access: SQL Basics – Creating Connection – Using a command with DataReader – Updating Data – Accessing Disconnected Data – Updating Disconnected data, Date Binding: Introduction- Single – Value Data Binding- Repeated Value Data Binding – Data Binding with Databases.

#### **TEXT BOOK:**

1. The Complete Reference Asp.Net - Matthew Macdonald –TMH.

#### **REFERENCE BOOKS:**

1. ASP.Net 3.5 Unleashed – Waither – Pearson Education
2. ASP and ASP.Net Rescue , Francise, Thomson Damer Learning

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**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – CORE COURSE - XII

(For the candidates admitted from the year 2016 - 2017  
onwards)

**ASP.NET PROGRAMMING LAB**

**Course Outcomes**

- Working with states of ASP.NET Pages & Ad rotator Control.
- Using multi view and calendar controls.
- Creating a hot text and hyper image to link with more than web pages using image and hot spots controls.
- Developing pages for a typical web application (Super Bazzar).
- Creating simple web application using web and server controls.

1. Design a web page that makes uses of Ad Rotator Control.
2. Design a web page involving Multi View and Calendar control.
3. Develop a web page using Wizard Control.
4. Make use of Image Control involving two Hot Spots in a web page.
5. Create a Web Page to stimulate a Super Bazar (Without Database).
6. Design a simple web site that makes use of Master Pages.
7. Program to develop ASP.Net Program using Web Controls.
8. Program to develop ASP.Net Program using Server controls.
9. Create table and Insert, Delete, Update the records using ADO .Net.
10. View the records using Grid View, Details View and Form View controls.
11. Create a student mark list in PHP using IF statement.
12. Create a shopping cart in PHP.
13. Create a database using classes in PHP.
14. Create a database using interface in PHP.
15. Create a PHP program using file concept.

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – ELECTIVE COURSE - I

(For the candidates admitted from the year 2016 - 2017  
onwards)

### **MICROPROCESSOR AND ITS APPLICATIONS**

#### **Course Outcomes**

- To learn the evolution of microprocessor.
- To understand the addressing modes of Intel 8085 in detail.
- To develop Assembly language programming skills.
- To learn Data Transfer Scheme and Interrupts of Intel 8085.
- To develop microprocessor applications using delay sub routine and 7 segment LED display.

#### **UNIT – I**

Evolution of Microprocessors – Single-chip Microcomputer – Memory – Buses – Memory Address Capacity of CPU – Intel 8085 – Instruction Cycle.

#### **UNIT – II**

Instruction set of Intel 8085 – Instruction and Data Formats – Addressing Modes – Status Flags – Intel 8085 Instructions – Programming of Microprocessors – Stacks and Subroutines – Micro Programming.

#### **UNIT – III**

Assembly Language Programming – Simple Examples – Addition and Subtraction – Complements – Shift – Masking – Finding Max and Min Number in an array – Arranging a series of numbers – Multibyte Addition and Subtraction.

#### **UNIT – IV**

Peripheral devices and interfacing – Address Space Partitioning – Memory and I/O Interfacing – Data Transfer Schemes – Interrupts of Intel 8085 – Interfacing Devices and I/O Devices – I/O Ports – Programmable Peripheral Interface.

#### **UNIT – V**

Microprocessor Applications – Delay Subroutines – Interfacing of 7 segment LED Displays – Frequency measurement – Temperature Measurement and Control – Water Level Indicator – Microprocessor Based Traffic Control.

#### **TEXT BOOK:**

1. Fundamentals of Microprocessors and Microcomputers – Badri Ram – Fifth revised and enlarged edition – Dhanpat Rai publication – 2001.

#### **REFERENCE BOOK:**

1. Microprocessor Architecture, programming and application with the 8085/8080A – Romesh S.Ganokar – Penram International Publishers India 1997.



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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – SKILL BASED ELECTIVE- II

(For the candidates admitted from the year 2016 - 2017 onwards)

### **VISUAL BASIC**

#### **Course Outcomes**

- Developing simple Visual Basic applications.
- How to perform operations and store results.
- Understanding loops to do repetition concepts.
- Identify the concept of data-driven program execution flow control in Visual Basic programming.
- Understanding Visual Basic default controls and additional controls.

#### **UNIT – I**

Customizing form and writing simple programs: Starting a new project – The properties of window – Common form properties – Scale properties – Color properties – Making a form responsive – Printing a visual representation of a form – types – creating stand – alone windows programs.

#### **UNIT –II**

Building the user interface : The toolbox – creating controls – The name (Control name) property – properties of command buttons – simple event procedures for command buttons –access keys – Image controls – Text boxes – labels – Navigating between controls – Message boxes – The Grid – The ASCII representation of forms.

#### **UNIT – III:**

Statements in Visual Basic – Variables – Setting properties with code – Data Types – Working with variables – More on strings – More on numbers – Constants – Input boxes – Displaying information on a form – The format function – Picture boxes – Rich Text Boxes – The Printer Object- Determination loops – indeterminate loops – Making decisions – Select case – Nested If-Then’s – The GoTo.

#### **UNIT – IV**

Built –in- function: String functions – Numeric Functions – Date and Time functions – financial functions- Function procedures – sub procedures – Advanced uses of procedures and functions organizing information vis code and control: List: One-dimensional arrays – Arrays with more than one dimension – Using Lists and Array with functions and procedures - Records (User-Defined Types) The With statement – Enums – Control arrays – List and Combo Boxes – The Flex grid control.

#### **UNIT – V**

Tool box – Frames – option buttons – check box – scroll bars – timers – common dialog control - The Mouse event procedures – Dragging and dropping operations – File commands – Sequential files- Random access files – Binary files – sharing files – File system controls – The file system objects .

#### **TEXT BOOK:**

1. Gary Cornell, “Visual Basic 6.0 from the Ground Up”, Tata McGraw Hill Edition, 1999.

#### **REFERENCE BOOKS:**

1. Peter Norton’s & Michael Groh, 1998 – “Guide to Visual Basic 6 Techmedia” “Visual Basic”- Paul Sheriff – PHI – 1999.
2. “Mastering visual Basic 6” – Evangelus Petroustos BPB Puhlnata

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – V SEMESTER – SKILL BASED ELECTIVE III

(For the candidates admitted from the year 2016 - 2017 onwards)

### **PHP**

#### **Course Outcomes**

- Open Source, Easy and fast maintenance.
- Superior performance, greater scalability, reliability.
- Compatible with operating system like IIS, Apache etc.
- Platforms independent and runs on Linux, Windows, or Unix.
- Large amount of databases are supported

#### **UNIT- I**

PHP Introduction: PHP Basics – Introduction to PHP programming – Introduction to variables – Operators – Constants.

#### **UNIT- II**

Control structures: Conditional statements – Conditional loops – Nested control Statement. Arrays: Initializing Arrays – Working With Arrays. Functions: Introduction to Functions – Passing Arguments to Functions – Returning Values from Functions.

#### **UNIT- III**

Understanding Classes: Classes – Constructor – Cookies – Introduction – The Scope of a Cookie – Implementing Cookies in PHP. Handling Files: Working With Files.

#### **UNIT- IV**

Handling Data Storage: An Introduction to Database Concept – Database Management System – Database Normalization – Advantage and Disadvantage of using Web Databases – MYSQL Database Programming: Creating Databases – Creating Tables – Viewing the Table in a Database – Viewing Table Structure – Entering Data in to a Table – Viewing Data in Table – Modifying the Data in a Table – Deleting a Data from a Table .

#### **UNIT- V**

Using PHP with SQL Databases (MYSQL): Connecting to a Database – Creating a Database in Mysql – Selecting a Database – Creating a Table in a Database – Inserting Records in a Table- Retriving Information from a Table - Updating Information in a Table.

#### **TEXT BOOK:**

1. “PHP PROFESSIONAL PROJECTS” – Ashish Wilfred, meeta gupta and kartik bhatnagar with NIIT, PHI publication (Prentice – Hall India)

#### **REFERENCE BOOK:**

1. ”PHP, MY SQL and Apache” – Julie c.meloni pearson education.

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**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – VI SEMESTER – CORE COURSE - XIII

(For the candidates admitted from the year 2016 - 2017  
onwards)

**SOFTWARE DEVELOPMENT LAB**

**Course Outcomes**

- Developing the skills to edit, test and implement software for a client-server environment.
- Developing user interfaces to collect and present data and information.
- Using regular expressions to handle exceptions and validate data for file and database storage.
- Implementing measures to create secure web sites.
- Create, design, and process a database.

Developing the packages for

1. Design of Text editor like note pad.
2. Library management system
3. Student data processing
4. Employee payroll processing
5. Inventory control system.
6. Bank data processing

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## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – VI SEMESTER – CORE COURSE - XIV  
(For the candidates admitted from 2016 - 2017  
onwards)

### **COMPUTER GRAPHICS**

#### **Course Outcomes**

- To Impart the knowledge of core concepts of computer graphics
- Elucidate the mathematical fundamentals of the concept of computer graphics.
- The students can analyze and apply the algorithms and techniques for the new era
- To Understand different graphics systems and applications of computer graphics

#### **UNIT-I**

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

#### **UNIT-II**

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations – Line, polygon and text clipping.

#### **UNIT-III**

3D Concepts: 3D Display Methods – 3D Graphics Packages. 3D Object Representations: Polygon Surfaces – Curved lines and Surfaces – Quadric Surfaces – Super quadrics – Blobby Objects – Spline representations. 3D Geometric and Modeling Transformations: Translation – Rotation – Scaling – Other Transformations – Composite Transformations – 3D Transformation translation functions..

#### **UNIT IV**

3D viewing – viewing pip line – viewing co-ordinates – projections – projection transformation – parallel projection transformations – perspective projection transformations – clipping – Hardware implementations – 3D viewing functions

#### **UNIT-V**

Visible-Surface Detection Methods: Classification of Visible-Surface detection algorithms – Back-Face Detection – Depth-Buffer Method – A-Buffer method- Scan-Line Method – Depth-Sorting Method – BSP-Tree Method – Area-Subdivision Method – Octree Methods – Ray-casting Methods – Curved surfaces – Wire frame Methods – Visibility-Detection functions.

#### **TEXT BOOK:**

1. Computer Graphics – Donald Hearn, M. Pauline Baker, 2nd edition, PHI.

#### **REFERENCE BOOK:**

1. Computer Graphics-Zhigang Xiang, Roy P lastock, 2<sup>nd</sup> edition , Tata Mcgraw Hill

Sl. No.:

Subject Code:

U16CS6C15

## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – VI SEMESTER – CORE COURSE - XV

(For the candidates admitted from the year 2016 - 2017 onwards)

### **SOFTWARE ENGINEERING**

#### **Course Outcomes**

- Learn about the software and software engineering activities.
- Find out how to choose the software process models based on their problem.
- Plan the project estimation work and they are know how to design the software package by using modern engineering activities.
- They become skilled at risk management system and software maintenance work.
- They gain knowledge of software and able to solve the problem by developing the

UNIT- I software package.

Software process : A generic process model – Process assessment and improvement – Prescriptive process models – Specialized process models – The unified process – Personal and Team process models – Process technology – Product and Process .

Agile development: What is agility – Agility and the cost of change – What is an agile process – Extreme programming.

UNIT- II

Modeling: Requirements engineering – Establishing the Groundwork – Eliciting requirements – Developing use cases –Building the Requirements model – Negotiating Requirements – Validating Requirements.

Requirements modeling: Requirements analysis – Scenario based modeling – UML models that supplement the use case – Data modeling concepts – Class-based modeling.

UNIT- III

Design concepts: Design within the context of software engineering – The design process – Design concepts – The design model.

UNIT -IV

Quality management: What is quality – Software quality – The software quality dilemma – Achieving software quality.

Software quality assurance: Background issues – Elements of software quality assurance – SQA Tasks, Goals and Metrics – Formal approaches to SQA – Statistical software quality assurance – Software Reliability – The ISO 9000 Quality standards – The SQA plan.

UNIT- V

Managing software projects :

Risk Management: Reactive versus Proactive risk strategies – Software risks – Risk identification – Risk projection – Risk refinement – Risk mitigation, monitoring and management – The RMMM Plan.

Maintenance and Reengineering: Software maintenance – Software supportability – Reengineering – Business process Reengineering – Software Reengineering – Reverse Engineering – Restructuring – Forward Engineering – The Economics of Reengineering.

TEXT BOOK:

1. “Software Engineering - A Practitioner’s Approach”, Roger s. Pressman, McGrawHill, 7<sup>th</sup> edn.

REFERENCE BOOK:

1. “Software Engineering Concepts”, Richard E. Fairley, McGrawHill,edn.

Sl. No.:

Subject Code:

U16CS6E2

## **GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – VI SEMESTER – ELECTIVE COURSE -II

(For the candidates admitted from the year 2016 - 2017 onwards)

### MANAGEMENT INFORMATION SYSTEM

#### **Course Outcomes**

- Awareness of business utilization.
- Support the knowledge for planning, organizing and controlling.
- To know the basic ideas of computer and storage devices.
- To implement the Information System in Business Management.
- To develop the knowledge of System analysis and Design.

#### UNIT: I

Definition of Management Information System – MIS support for planning, organizing and controlling –Structure of MIS –Information for decision –making.

#### UNIT: II

Concept of system – Characteristics of System – System classification – categories of Information systems – Strategic information system and competitive advantage.

#### UNIT: III

Computers and Information processing – Classification of computers- Input devices – Output devices – Storage devices =Batch and online processing. Hardware – Software - .Database Management Systems.

#### UNIT: IV

System analysis and Design –SDLC – Role of System Analyst – Functional Information system – Personnel, production, material marketing.

#### UNIT: V

Decision support System –Definition. Group Decision Support System – Business Process Outsourcing –Definition and function.

#### TEXT BOOK:

1. Management Information System – Dr. S. P. Rajagopalan

#### REFERENCE BOOKS:

1. “Management Information System”, Prentice – Hall of India – Mudick & Ross.
2. “Management Information System”, -Gordan B.Davis.
3. “Management Information System”, Prentice – Hall of India –Sadagopan.
4. “Management Information System”, -CSV Murthy –Himalaya publicati
5. “Information systems Analysis and Design “-Jame A.Senn.

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05**

B.Sc ., Computer Science – VI SEMESTER – ELECTIVE COURSE -III

(For the candidates admitted from 2016 - 2017 onwards)

**DATA COMMUNICATION AND NETWORKS****Course Outcomes**

- To learn the basics of networks and topologies.
- To learn the function of layers in OSI model.
- To understand the TCP/IP protocol suite and get ideas of modems.
- To develop the knowledge of Media Transmission and Media comparison.
- To implement different types of switching concepts and routing algorithms.

**UNIT- I**

Data Communication – Networks – Protocols and Standard – Line configuration

– Topology – Transmission Mode – Categories of networks – Internet works.

**UNIT- II**

The OSI Model – Functions of the layers – TCP/IP Protocols suite – Signals – Analog and Digital Signal – Data Transmission – Data Terminal Equipment – Data Circuit Terminals equipment – Modems.

**UNIT- III**

Transmission of Media – Guided Media – Unguided Media – Transmission Impairments – Media Comparison – Multiplexing – FDM – TDM – WDM. Error Detection and Correction – Types of errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC). Check Sum – Error Correction.

**UNIT- IV**

Switching – Circuit Switching – Packet Switching – Message Switching Networking and Internetworking Devices – Repeaters – Bridges – Routers – Gateways. Routing Algorithm – Distance Vector Routing – Link State Routing – Data Link Control – Discipline – Flow Control.

**UNIT- V**

Internetworking : TCP/IP Protocol Suite – Client Server Model – Domain Name

System – File Transfer Protocol (FTP) – Simple Mail Transfer Protocol (SMTP) – World Wide Web (WWW) – Hyper Text Transfer Protocol (HTTP).

**TEXT BOOK:**

1. “Data Communications and Networks” – Behrouz A.Forouzan Second Edition, Tata McGraw Hill Edition.

**REFERENCE BOOKS:**

1. “Introduction to Networking” – Barry Nance, Fourth Indian Eastern Economy Edition.
2. “Computer Networks” – Andrew S. Tanenbaum 4th Edition Eastern Economy Edition, 2003.