



**ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE**  
(Re-accredited with B+ Grade by NAAC)  
Tiruppattur - 630 211.

**B.Sc. Computer Science Programme**

**Programme Outcome (POs) :**

- PO1. Students will have the sound knowledge in theory and practical in the discipline of computerscience. They have the Critical thinking skills by doing the programming exercises throughout computer science curriculum. Graduates will have the ability to identify, formulate and design solutions in the areas of Computer Science.
- PO2. Students will be able to communicate technical information effectively in both verbal and written form in industry and society.
- PO3. Students undertook projects which offer opportunities for interaction with academia and industry. Students will be able to work in teams to build software systems and apply the computing knowledge to the benefit of the society
- PO4. Students will be an effective citizen of our country by the acquired sense of community, social and civic responsibilities, democratic and leadership qualities, emergencies and national disasters, and national integration and social harmony.
- PO5. Students will demonstrate knowledge related to social, ethical, health and safety, sustainability and environmental dimensions.
- PO6. Students understand the issues of environmental contexts and sustainable development.
- PO7. Students adapt to societal change for improved career opportunities in industries, academics and entrepreneurial endeavors. Engage in life-long learning acquiring knowledge of contemporary issues so as to face the career challenges.

**Programme Specific Outcome (PPOs):**

- PSO1. Know the programming concepts and methodology & the functionality of hardware and software aspects of computer systems.
- PSO2. Afford effective and efficient real time solutions using acquired knowledge in various domains such as C, C++, JAVA, HTML, Oracle, .Net etc.
- PSO3. Afford a technical training, through a range of educational activities, to develop a range of transferable skills applicable to employment.
- PSO4. Apply the knowledge gained through project experience in jobs



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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### B.Sc. Computer Science Programme

#### 7BCE1C1: Programming in C:

##### Course Description:

This C programming course provides a comprehensive introduction to the ANSI C language, emphasizing portability and structured design. Comprehensive examples are integrated throughout to reinforce learning.

##### Course Objectives

- Students will be exposed to C Programming language. They will learn syntax and semantics in C language. Students are introduced to fundamental data types, flow control, and standard function libraries.
- Thorough treatment is given to the topics of string and character manipulation, dynamic memory allocation, standard I/O, macro definition, and the C runtime library.
- The course explains the use of structures, unions, and pointers. Structured programming constructs and various functions are also covered. Emphasis is given to the processing of command line arguments and environment variables so students will be able to write flexible, user-friendly programs.
- They will also learn to solve problems using various programming logic and various file types.

##### Course Outcome (COs)

Students completing the course will be able to

CO1. Develop their skill in C programming language.

CO2. Understand the basic concepts of program development statements and its syntax.

CO3. Understand the various types of arrays.

CO4. Know about the various types of Functions and String handling mechanisms.

CO5. Really Understand the Concepts of structures and Unions.

CO6. Illustrates the various operations performed on different types of data files.



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### B.Sc. Computer Science Programme

#### 7BCE1P1: Programming in C Lab:

##### Course Description:

This C programming lab course provides hands on training in ANSI C language. Comprehensive hands-on exercises are integrated throughout to reinforce learning and develop real competency.

##### Course Objectives

- This course objective is to write, compile, debug and execute C programs, to formulate problems and implement algorithms and to effectively choose programming components that efficiently solve computing.
- The first list of C Programs are to find the sum of digits, Armstrong number, Prime number, Adam number, reversing a number, minimum, maximum, sorted array, Fibonacci series, matrix multiplication, NCR and NPR.
- The next list of C Programs are to find grade of a student, to do String handling functions, to find even numbers from a file, to calculate quadratic equation using switch-case, to count number of characters, words and lines in a text file, to create and process the student mark list using file, to create and process pay bill using file, Program to create and process inventory control using file, and to create and process electricity bill using file.
- Students come with their developed programs to their lab session. They have to enter, compile, link and execute tow programs in their lab session. They have to correct the syntax error, logical errors, input errors and output errors. Students are assessed by formative and summative assessment and examinations.

##### Course Outcome (COs)

Upon successful completion of this lab Course, student will be able to

CO1. Explain the role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.

CO2. Use conditional expressions and looping statements to solve problems associated with conditions and repetitions.

CO3. Use Arrays and Functions in programs.

CO4. Use pointers, structures and files handling.

CO5. Develop their skill in executing C programs.

CO6. Design algorithmic solution for a given problem. CO7. Construct the flowchart to solve mathematical and scientific problems.



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**B.Sc. Computer Science Programme**

**7BSOA1: Fundamentals of Computer:**

**Course Description:**

This course gives a brief introduction to Computer and its components, and the need for data processing. Student could learn the function of the operating system. Students will also be exposed to Windows, MS Word and MS Power-point.

**Course Objectives**

- A computer is an electronic machine that accepts data, stores and processes data into information.
- The computer is able to work because there are instructions in its memory directing it.
- A brief introduction of Computer and its components i.e., hardware and software are described. Student could learn the definition and functions of the operating system.
- The Windows operating system components and its control panel functions are described. The student could learn the application of Word Processing-MS Word and Presentation-MS Power-point.

**Course Outcome (COs)**

Students completing the course will have the ability

CO1. To develop their skill in Windows Operating System.

CO2. To create and edit documents.

CO3. To design presentations.

CO4. To connect the components of the computer.

CO5. To install the OS and application soft wares.

CO6. To install drivers for input and output units.

CO7. To use the computer effectively.



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### B.Sc. Computer Science Programme

#### 7NME1FC: Communicative English:

##### Course Description:

This course enables each learner at the college level to communicate effectively in English both in the spoken and in the written mode.

##### Course Objectives

- The student will learn the basics of English, LSRW skills, spoken communication skills and written communication skills.

##### Course Outcome (COs)

Students completing the course will have the ability

CO1. To know the basics of English.

CO2. To listen, read speak, and write in English.

CO3. To participate in a conversation.

CO4. To prepare speeches.

CO5. To take notes and summarize the topic

CO6. To prepare curriculum vitae, notice circulars, memos and agenda for a meeting.

CO7. To write e-mails and reports.



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### B.Sc. Computer Science Programme

7BCE2C1: Object Oriented Programming with C++:

#### Course Description:

Students will be exposed to C++ Programming language. The C++ programming course provides an accelerated introduction to the most essential syntactical components of the C and C++ language, focus on object-oriented programming with C++. Comprehensive examples are integrated throughout to reinforce learning and develop real competency.

#### Course Objectives

- Students will learn syntax and semantics of statements in C++ language. The course
- begins by introducing the built-in data types, fundamental control constructs, and rich
- expression operator repertoire common to both C and C+. The central concepts of C++
- syntax and style are taught in the context of using object-oriented methods to achieve
- reusability, adaptability and reliability. Emphasis is placed on the features of C++ that
- support abstract data types, inheritance, and polymorphism. Students will learn to apply the
- process of data abstraction and class design. Practical aspects of C++ programming including
- efficiency, performance, testing, and reliability considerations are stressed throughout. They
- will also learn to solve problems in using object-oriented approach.

#### Course Outcome (COs)

Students completing the course will be able to

CO1. Explain the top-down and bottom-up programming approach and apply bottom-up approach to solve real world problems.

CO2. Explain the difference between static and dynamic binding.

CO3. Describe the concept of inheritance, overloading, constructors and apply real world problems.

CO4. Discuss the generic data type for the data type independent programming which relates it to reusability.

CO5. Explain to design of handling large data set using File I/O.

CO6. Develop their skill in C++ programming language.



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### B.Sc. Computer Science Programme

#### 7BCE2P1: Object Oriented Programming with C++Lab:

##### Course Description:

This Object Oriented Programming with C++ Lab course provides hands on training to students. The lists of program are integrated throughout to reinforce learning and develop real competency.

##### Course Objectives

- Students will be exposed to C++ Programming language. They will learn syntax and semantics of statements in C++ computer programming language.
- They will also learn to solve problems in Object oriented ways i.e., bottom approach. The lists of program are to evaluate prime numbers, to convert digits to words and to find area using function overloading. Also write programs to demonstrate the concepts of inline functions, simple arithmetic operations, pre-defined manipulators, friend function, array of objects, constructor overloading, overloading the unary - operator, single inheritance, "this" pointer, manipulator, function templates, and class templates.
- The next list of C++ Programs are to develop and evaluate overloading the binary + operator, Multiple inheritance, Multilevel inheritance, Hierarchical inheritance, Virtual functions, Processing mark list using binary file, Count number of objects in a file and Command-line arguments. Students come with their programs to their lab session.
- They have to enter, compile, link and execute tow programs in their lab session. They have to correct the syntax error, logical errors, input errors and output errors. Students are assessed by formative and summative assessment and examinations.

##### Course Outcome (COs)

Students completing the course will have the

CO1. Ability to use the features of C++ using object oriented programming.

CO2. Ability to use the relative merits of C++ as an object oriented programming language.

CO3. Ability to use encapsulation and inheritance.

CO4. Ability to implement programs in C++ Using polymorphism.

CO5. Ability to do the advanced features of C++ specifically stream I/O, templates and operator overloading.

CO6. Ability to develop their skill in executing C++ programming language.

CO7. Ability to design and test programs to solve mathematical and scientific problems using object oriented concepts.





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### B.Sc. Computer Science Programme

#### 7BSOA2 : Desktop Publishing:

##### Course Description:

This course offers a wide range of features and tools that can help students to work with different design approaches. Students will be exposed to CorelDraw and Photoshop.

##### Course Objectives

- CorelDraw is getting started to help to speed quickly with CorelDraw and its new features. This class begins with an overview of the application, including a tour of the interface and a guide to the basic drawing tools, then moves on to more advanced topics, such as adding text, controlling page layout, publishing, and printing final documents.
- The CorelDraw software is designed for graphic designers, fashion designers, textiles designers, print professionals, packaging firms, and aspiring designers. Adobe Photoshop enables individuals to create and design digital images and illustrations for print and Web publication.
- Adobe's Photoshop program has become a mainstay with graphics designers, professional photographers, and even hobbyists to edit graphics as well as create and manipulate images. Students will also learn to use this software.

##### Course Outcome (COs)

The students will develop their desktop needs using Corel draw and Photoshop. Students completing the course will have the ability

CO1. To create and edit desktop publishing with CorelDraw and Photoshop.

CO2. To use the Corel Draw Objects- Creation and Manipulation Drawing and Shaping objects.

CO3. To work with text special effects.

CO4. To work with bit map commands.

CO5. To work with images using Photoshop.

CO6. To work with tools and filters.





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### B.Sc. Computer Science Programme

#### 7BES2 : Environmental Studies:

##### Course Description:

Creating awareness among students about the importance of environment, the effect of technology on the environment and ecological balance is the prime aim of the course.

##### Course Objectives

- This course gives a brief introduction about the importance of environment and nature. This also describes about renewable and non-renewable resources, Ecosystems, Bio-diversity and its conservation and pollution.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able to

CO1. Know the importance of environmental studies and methods of conservation of natural resources.

CO2. Describe the structure and function of an ecosystem.

CO3. Identify the values and conservation of bio-diversity.

CO4. Explain the causes, effects and control measures of various types of pollutions.

CO5. Select the appropriate methods for waste management.

CO6. Get knowledge about various disaster management methods.

CO7. Recall social issues and legal provision.



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### B.Sc. Computer Science Programme

#### 7BCE3C1: Data Structures and Computer Algorithms:

##### Course Description:

The Course provides an overview of where algorithms and data structures are used. They will easily learn and implement the various data structures. They will also learn different algorithms to solve a problem.

##### Course Objectives

- The course covers various data structures and different algorithms. The introduction and implementation for data structures like stack, queue, and tree using arrays and linked lists are described.
- Algorithmic techniques and ideas for computational problems are arising frequently in practical applications: sorting and searching, divide and conquer, greedy algorithms, dynamic programming.
- Students will learn a lot of theory about: how to sort data and how it helps for searching; how to break a large problem into pieces and solve them recursively; Students will practice in solving computational problems, designing new algorithms, and implementing solutions efficiently.

##### Course Outcome (COs)

The student will understand and implement various data structures and algorithms using their learned skills in C and C++. Students completing the course will be able to

CO1. Explain the concepts of arrays and linked lists

CO2. Explain the stack and queue organization using linked list

CO3. Describe the concept of various searching and sorting algorithms.

CO4. Discuss the Tree and Tree traversal methods.

CO5. Explain the design of the Greedy Methods, Minimum cost spanning trees and graphs



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### B.Sc. Computer Science Programme

#### 7BCE3P1: Data Structures and Computer Algorithms Lab (using C and C++):

##### Course Description:

This Lab course provides hands on training to students in data structure and computer algorithms. The lists of program are integrated to learn and develop algorithms. Object Oriented Programming with C++ and C are used to solve the problems.

##### Course Objectives

- The objective of this lab is to teach students various data structures and to explain them for performing various operations on these data structures. This lab complements the data structures course.
- Students will gain practical knowledge by writing and executing programs in C using various data structures. The lists of data structures program using C are implementation of Stack using array and linked list, infix to prefix and prefix to infix expressions using stack, Queue using array and linked list, binary tree traversal and binary search tree.
- The list of programs for algorithm using C++ is to implement linear Search, Binary Search, Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, and Selection Sort. Students exposed to C and C++ Programming language in previous semesters. Hence, students are asked to solve the problems with C and C++.
- They have to enter, compile, link, execute and verify their results of the program in their lab session. They have to correct the syntax error, logical errors, input errors and output errors. Students are assessed by formative and summative assessment and examinations.

##### Course Outcome (COs)

The student skills in C and C++ programming languages are extended. Students completing the course will have the

CO1. Ability to solve mathematical and scientific problems using object oriented concepts.

CO2. Ability to create stack using arrays and linked lists.

CO3. Ability to create Queue using arrays and linked lists.

CO4. Ability to implement prefix and postfix conversion.

CO5. Ability to implement Tree traversal.

CO6. Ability to implement all searching and sorting method.



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### B.Sc. Computer Science Programme

#### 7BMAA1 : Ancillary Mathematics I:

##### Course Description:

This course is designed for students of B.Sc Physics, Chemistry, Computer Science... as allied course. The goal of this course is to help the students to know the basic topics which will enable them to understand certain topics in their major course and to apply the methods to solve problems and to do research work.

##### Course Objectives

- On completion of this course the learner will
- 1. know to evaluate the improper and proper integral, definite integral, double integral.
- 2. know the properties of eigen values and eigen vectors and applications of characteristics equation.
- 3. solve second order differential equation.
- 4. know the expansion of the trigonometric functions.
- 5. know to sum the algebraic series.

##### Course Outcome (COs)

students will be able to

1. integrate using integrating by parts, Bernoulli's formula, properties of definite integral and reduction formula.
2. find the rank of the matrix solve the simultaneous equations, eigen values and eigen vectors and inverse of the matrix using Cayley's Hamilton theorem.
3. find the solution of differential equations.
4. find the expansion of trigonometry function and solve problems in hyperbolic and inverse hyperbolic function.
5. sum the binomial, exponential and logarithmic series.



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### B.Sc. Computer Science Programme

#### 7NME3C: Effective Employability Skills:

##### Course Description:

This course teaches the basic skills needed to get employment. This course is to build a sense of awareness among students through proper guidance about various effective employability skills in order to motivate students for prospective career in government and corporate sector.

##### Course Objectives

- The steps to be followed by the students to get selected for a job are discussed. A resume or CV preparation which is a snapshot of the any one qualification for a particular position or type of work is described.
- This course gives the Tips and Tricks to ace Group Discussions and to face an interview. This course also enables the students to learn the team work and motivation needed for a company.

##### Course Outcome (COs)

Students completing the course will have the ability

CO1. To know the format of CV and resume.

CO2. To know how to face the interviews.

CO3. To know about the Group Discussion.

CO4. To know about the need of team work and motivation.



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### B.Sc. Computer Science Programme

#### 7SBS3A1: Competitive Examination Skills:

##### Course Description:

This course is to build a sense of awareness among students through proper guidance about various competitive examinations in order to motivate students for prospective career in government and corporate sector. This course is also to intensively guide students for competitive examinations like TNPSC, UPSC, SSC, RRB, IBPS etc

##### Course Objectives

- The competitive examinations skills are well described in this course. The introduced skills are the Numerical ability, Verbal abilities, Memory and inductive reasoning, Logical reasoning, Coding and Decoding, Direction Test, Syllogism, Spatial and perceptual abilities, situation reaction test Intelligence, creativity, and testing.

##### Course Outcome (COs)

Students completing the course will have the ability

CO1. To understand the numerical ability, verbal ability and perceptual ability.

CO2. To understand the Logical reasoning, memory and inductive reasoning.

CO3. To know about the examination pattern for the respective entrance.

CO4. To know about the magazines that helps to improve skills.



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### B.Sc. Computer Science Programme

#### 7BEA3: Extension activities:

#### Course Description:

Extension activity provides a link between the College and the Society. An extension activity is an activity that extends the learning of students.

#### Course Objectives

- The second year students are made aware of the common extension activities in order to create socially sensitive citizens. Extension Activities will be organized for 2 days in the Third Semester.
- The programme may be organized in any Saturday and Sunday. A meeting of all the staff of the department be conducted before departing to the camp in which Programmes to carried out.

#### Course Outcome (COs)

Students completing the course will have the ability

CO1. To understand the community in which they work

CO2. To understand themselves in relation to their community

CO3. To identify the needs and problems of the community and involve them in problem solving process

CO4. To develop among themselves a sense of social and civic responsibility

CO5. To utilize their knowledge in finding practical solution to individual and community problems

CO6. To develop competence required for group-living and sharing of responsibilities

CO7. To gain skills in mobilizing community participation

CO8. To acquire leadership qualities and democratic attitude





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### B.Sc. Computer Science Programme

#### 7BCE4C1: Java Programming:

##### Course Description:

This course of study builds on the skills gained by students in Java Fundamentals and helps to advance Java programming skills. . The course emphasizes becoming productive quickly as a Java application developer.

##### Course Objectives

- This course covers the Java language syntax and then moves into the knowledge of object-oriented features of the language. Students will then learn the I/O streams and collections API packages.
- Students will learn to extend their programming experience in Java and develop more complex Java applications. Students will design object-oriented applications with Java.

##### Course Outcome (COs)

Students completing the course will have the ability

CO1. Write, compile and execute Java programs.

CO2. Explain about basic Java language syntax and semantics to write Java programs.

CO3. Describe the concepts of variables, conditional and iterative execution methods.

CO4. Discuss the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods.

CO5. Explain the various methodologies to handle the exception mechanisms and the principles of inheritance, packages and interfaces.

CO6. Demonstrate the programming concepts for applet and graphics.



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### B.Sc. Computer Science Programme

#### 7BCE4P1: Java Programming Lab:

##### Course Description:

This course gives practical training in JAVA to develop various application programs, applet programs, utility programs. This covers design, implementation and testing software using Java. Write Java programs that solve practical, real world, business-oriented problems using object-oriented design.

##### Course Objectives

- The objective of this lab is to learn the Java language syntax and Java object-oriented features. Students will learn the I/O streams and API packages collections with suitable examples.
- The programming experience in Java and Java applications extend the students skill. This lab complements the Java course. Students will gain practical knowledge by writing and executing programs in Java. The lists of Applet programs are to displaying digital clock, to draw our national flag, to draw bar charts, to draw building, to draw the various shapes, to design a simple calculator and to animate a ball across the Screen.
- The lists of other java programs are to understand class and objects, method overloading, exception, threads, command line arguments, matrix operations, sting operations, inheritance, interface and Package. Students are trained to compile and execute java codes. A lot of the useful java web sites are given to students for learning and understanding. Students are assessed by formative and summative assessment and examinations.

##### Course Outcome (COs)

On successful completion of this course the student should be able to:

CO1. Explain the programming language design, syntax and semantics.

CO2. Explain the java programs using object oriented class with parameters, constructors, methods including inheritance, test classes, and exception handling.

CO3. Draw and Animate using events based advanced java program concepts (Applet).

CO4. Use interface and Package.

CO5. Create Java programs that solve simple business problems.



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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Tirupattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BMAA2: Ancillary Mathematics II:

#### Course Description:

This course is designed for students of B.Sc Physics, Chemistry, Computer Science... as allied course. The goal of this course is to help the students to know the basic topics which will enable them to understand certain topics in their major course and to apply the methods to solve problems and to do research work.

#### Course Objectives

- On completion of this course the learner will
- 1. about moments, skewness and kurtosis and curve fitting.
- 2. have knowledge in correlation and regression.
- 3. know about interpolation.
- 4. expose to Laplace transform and inverse Laplace transform.
- 5. be familiar with fourier series.

#### Course Outcome (COs)

students will be able to

1. Find moments of a variable, co- efficient of skewness and kurtosis and fit a straight line and a parabola.
2. to find the correlation, rank correlation, regression between two variables.
3. find the missing data from the given data using Newton and lagrange's method.
4. find the Laplace transform and inverse Laplace transform of a function and solve second order differential equation using L.T.
5. find the fourier series of a function.



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### B.Sc. Computer Science Programme

#### 7SBS4B2: Emergency and Medical Lab Skills:

##### Course Description:

This course is to build a sense of awareness among students through proper guidance about various emergency and medical lab skills in order to motivate students for prospective life. This course is also to intensively guide students in emergency situations.

##### Course Objectives

- This course is to enable students to learn First Aid to Fracture and Fire, to Animal and Snake bites, to Diarrhea, Dysentery and Heat Stroke.
- This course is also to enable students to know the traffic rules and steps to be taken in accidents. This course is also give awareness to students about the use of herbal plants and vegetables.

##### Course Outcome (COs)

On successful completion of this course the student should be able to:

CO1. Recognize the nature and seriousness of the patient's condition or extent of injuries to assess requirements for emergency medical care

CO2. Administer appropriate emergency medical care based on assessment findings of the patient's condition

CO3. To Perform safely and effectively the expectations of the job



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### B.Sc. Computer Science Programme

#### 7BMY4: Manavalakalai Yoga:

##### Course Description:

This course is an education for students for culturing the mind. Learning and practicing Manavalakali Yoga by students would help them to acquire Physical health, Mental acuteness, strength of life force and wisdom.

##### Course Objectives

Yoga to students is the only means through which social welfare could be derived.

The Course objectives are

- 1. To train and develop the physical body for leading a healthy life.
- 2. To rejuvenate the life energy, to retard the ageing process and to achieve spiritual development.
- 3. To offer meditation practices and introspection so as to strengthen the mind increase its will power, concentration, creativity and receptivity and ultimately to transform the mind to achieve self realization.
- 4. To help every individual to realize the enduring values of peace, non-violence and harmony to revitalize human society for restoring its sanity and strength

##### Course Outcome (COs)

Yoga to students is the only means through which social welfare could be derived. On successful completion of this course the student should be able to:

CO1. To develop healthy human body.

CO2. To delay the aging process.

CO3. To restore life energy.

CO4. To achieve spiritual development

CO5. To increase power, concentration, creativity and receptivity

CO6. To achieve self realization

CO7. To keep the society with peace, non-violence and harmony



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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### B.Sc. Computer Science Programme

#### 7BCE5C1: Operating System:

##### Course Description:

Operating system is system oriented software protects user and hardware resources. This course will introduce the core concepts of operating systems, such as processes and threads, scheduling, synchronization, memory management, file systems, input and output device management and security.

##### Course Objectives

- This course purpose is to learn:
- 1. Resource management, Processes: critical sections and mutual exclusion, semaphores, monitors, classical problems, deadlock; process scheduling.
- 2. Introduction to hardware support for operating systems: privileged mode execution, saving and restoring CPU state, traps and interrupts, timers, memory protection,
- 3. Memory management: multi-programming; swapping; virtual memory, paging and symbolic segmentation;
- 4. File System: operations, implementation, performance.
- 5. Operating System Security and Protection mechanisms: protection domains, access lists, capability systems, principle of minimum privilege, security threats.

##### Course Outcome (COs)

On successful completion of this course the student should be able to:

CO1. Describe the basic components of an operating system and their role in implementations for general purpose, real-time and embedded applications.

CO2. Define the concepts of processes, threads, asynchronous signals and competitive system resource allocation.

CO3. Explain what multi-tasking is and outline standard scheduling algorithms for Multi-tasking.

CO4. Discuss mutual exclusion principles and their use in concurrent programming including semaphore construction and resource allocation.

CO5. Expose the details of major operating system concepts, overview of system memory management and the implementation of file systems.



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### B.Sc. Computer Science Programme

#### 7BCE5C2 : Relational Database Management Systems:

##### Course Description:

The Relational Database Management Systems (RDBMS) course is to educate students with fundamental concepts of File processing and database processing system, the various data model and its application, the various normal forms and its role in DBMS. The students will also learn the concepts to learn SQL programs, function, procedure, package, trigger and exception handling.

##### Course Objectives

- The RDBMS course provides an introduction to Database System, Entity-Relationship Model, designs of Database System, an overview of the architecture, functions, and benefits of a database management system and discusses various database models.
- The course describes the data structure of a relational database model in detail. This course provides to use Triggers, Package, Cursors, and Transaction in PL/SQL.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able to

CO1. Master the basic concepts and appreciate the applications of database systems.

CO2. Master the basics of SQL and construct queries using SQL.

CO3. Familiar with a commercial relational database system (Oracle) by writing SQL using the system.

CO4. Familiar with the relational database theory and be able to write relational algebra expressions for queries.

CO5. Master sound design principles for logical design of databases, including the ER method and normalization approach.

CO6. Be familiar with the basic issues of transaction processing.





## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

(Re-accredited with B+ Grade by NAAC)

Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

7BCE5P1 : Relational Database Management Systems Lab

#### Course Description:

: This lab course instructs to familiarise the student with the database environments ie., to give a good formal foundation on the relational model of data, to present SQL and procedural interfaces to SQL comprehensively, to motivate the students to develop commercial product and to present the concepts and techniques relating to query processing.

#### Course Objectives

- The course will aim at achieving a good practice which will enrich student in RDBMS. The major objective of this lab is to provide a strong formal foundation in data base concepts, to provide a sound introduction to the discipline of database management, technology and practice to the students to groom them into well-informed database application developers.
- The fundamental concepts of SQL programs, describe the concepts of function, procedure, package, trigger and exception handling are the concepts to learn. Students are trained to start the oracle engine and to stop. A lot of the useful SQL queries and data base processing are given to students for learning and understanding. Students are assessed by formative and summative assessment and examinations

#### Course Outcome (COs)

After undergoing this laboratory module, the student will be able to:

CO1. Understand, appreciate and effectively explain the underlying concepts of database technologies

CO2. Design and implement a database schema for a given problem-domain

CO3. Populate and query a database using SQL DML/DDDL commands.

CO4. Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS

CO5. Programming PL/SQL including stored procedures, stored functions, cursors, packages.



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BCEE1B : Web Design:

#### Course Description:

This course specializes students in the development of World Wide Web applications or applications that are run over HTTP from a web server to a web browser. This course is responsible for designing, coding and modifying websites, from layout to function and according to a client's specifications. Strive to create visually appealing sites that feature user-friendly design and clear navigation.

#### Course Objectives

- This course aims to make students as a web developer. This introduces the theory, principles and practice of web programming by means of using HTML, CSS and JavaScript.
- The objectives are to build web applications using client side script technologies and to build XML applications with DTD and Schema.

#### Course Outcome (COs)

Upon successful completion of this course, students will be able to.

CO1. Discuss about the creation of cascading style sheets, backgrounds, media types and building a dropdown menu.

CO2. Explain the JavaScript, control structure, if structure, switch, do-while and logical operators.

CO3. Describe the JavaScript functions, JavaScript arrays and JavaScript objects.

CO4. Discuss the DOM, and JavaScript events.

CO5. Understand the role of HTML, DHTML, CSS, XML and JavaScript is useful to create web pages.

CO6. Understand, analyze and build dynamic web pages using JavaScript. (client side programming).

CO7. Understand, analyze and build interactive web applications.

CO8. Understand, analyze and create XML documents and XML Schema.

CO9. Describe the concepts of markup languages, un order list, table, formatting, liking, frames and forms



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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Tirupattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BC EE2A: Digital Principles and Computer Organization:

##### Course Description:

The course is based on the fundamental module on digital principles and organization of computer.

##### Course Objectives

- This course is designed to provide a comprehensive introduction to digital logic design leading to the ability to understand number system representations, binary codes, binary arithmetic and Boolean algebra, its axioms and theorems, and its relevance to digital logic design.
- The course is to impart knowledge in the functional organization of physical components and architecture of a computer. Students will understand the functional units of a standard PC and working. The memory organization in a computer is described.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able to

CO1. Demonstrate knowledge of binary number theory, Boolean algebra and binary codes.

CO2. Analyze and design combinational systems using standard gates and minimization methods.

CO3. Analyze and design combinational systems composed of standard combinational modules, such as multiplexers, flip-flops, demultiplexer and decoders.

CO4. Analyze and design the Basic Computer organization.

CO5. Analyze of Central Processing units, I/O, and memory.



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

(Re-accredited with B+ Grade by NAAC)

Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

#### 7SBS5A5: Heritage and Tourism:

##### Course Description:

This course is to introduce students about the basic concepts and related texts in heritage and tourism studies. The students will learn the issues relating to the social and cultural impacts of modern tourism.

##### Course Objectives

- The course objectives are
- 1. To learn the definitions, terminology and concepts of cultural heritage and its relationships with tourism.
- 2. To learn the heritage tourism supply by examining different categories of heritage attractions and the contexts within which heritage exists and additional perspectives on scale from the supply perspective.
- 3. To learn the role of interpretation in cultural heritage sites and the relevance of such interpretation approaches to visitors.
- 4. To provide a framework to plan, design, and assess interpretation programs for tourists

##### Course Outcome (COs)

Upon successful completion of this course, students will be able

CO1. To have the knowledge of the cultural tourism, ecotourism and heritage sites.

CO2. To know tourism constructs and tourist roles.

CO3. To know about the tourists.

CO4. To understand the issues relating to tourism development.



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

(Re-accredited with B+ Grade by NAAC)

Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

#### 7SBS5A6 : Marketing and Sales Management:

##### Course Description:

The course is designed to provide students with an understanding of the processes involved in personal selling and sales management. The course describes the sales and marketing elements that enable a student to be an effective salesman.

##### Course Objectives

The Course objectives are

- 1. To acquire analytical skills for solving marketing related problems and challenges and to familiar with the strategic marketing management process
- 2. To learn the elements of sales force to be an effective component of an organization's overall marketing strategy.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able

CO1. To understand the types, dimensions and plans of marketing.

CO2. To understand the segments, components and channels of marketing.

CO3. To understand the sales and customers.

CO4. To understand the steps of selling.

CO5. To understand the modern trends in marketing and sales.

CO6. To understand how the sales and sales management a role of all industries



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

(Re-accredited with B+ Grade by NAAC)

Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BCE6C1 : Computer Networks

##### Course Description:

: The students are enabled to learn the principles of computer networks, basics of data communication, network reference models, design issues of layers, various types of computer networks, designing communication protocols and internet security.

##### Course Objectives

- Networks: Technologies in supporting data communications, which include network architectures, protocols, and standards, addressing and routing methodologies, design issues of layers, application layer protocols and cryptography algorithms.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able to

CO1. Define, use and implement Computer Networks and the basic components of a Network system.

CO2. Know and Apply pieces of hardware and software

CO3. Differentiate the various types of network configurations

CO4. Understand the layers of OSI and TCP models

CO5. Define the different protocols, software, and network architectures.

CO6. Define the concept of local area networks, their topologies, protocols and applications.

CO7. Define the need security and control, what errors might occur, and how to control network errors.



**ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE**  
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Tirupattur - 630 211.

**B.Sc. Computer Science Programme**

**7BCE6C2 : Computer Graphics:**

**Course Description:**

The course introduces the basic theoretical underpinnings and concepts behind computer graphics and Expose student to algorithms, tools and techniques for implementing the same. This course is also designed to provide a comprehensive introduction to computer graphics leading to understand contemporary terminology, progress, issues, and trends.

**Course Objectives**

- Computer graphics are an intrinsic component of many modern software applications and are often essential to the success of these applications. The objective of this course is to familiarize the student with fundamental algorithms and data structures that are used in today's interactive graphics systems as well as programming and architecture of highresolution graphics computers.
- The principles and practice of computer graphics are described from their mathematical foundations to the modern applications domains of scientific visualization, virtual reality, computer games and film animation.

**Course Outcome (COs)**

Upon successful completion of this course, students will be able to

1. Demonstrate an understanding of contemporary graphics hardware.
2. Create interactive graphics applications in C++ using one or more graphics application programming interfaces.
3. Write program functions to implement graphics primitives.
4. Write programs that demonstrate geometrical transformations.
5. Demonstrate an understanding of the use of object hierarchy in graphics applications.
6. Write program functions to implement visibility detection.
7. Write programs that demonstrate computer graphics animation.
8. Write programs that demonstrate 2D image processing techniques.





## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BCE6C3 : Software Engineering:

##### Course Description:

This course is to gain a detailed understanding of the phases of the software development lifecycle; appreciate the problems that are associated with each of the phases, and be able to identify best practice for their solution. This course is to understand the issues surrounding the project management activities required for the development of a significant piece of software within a team environment and gain an appreciation of the complexities and impact of legislation on the professional work environment.

##### Course Objectives

- Software development practices: development models including plan driven; software reuse; configuration management, maintenance and evolution of large software systems. Requirements discovery and analysis: discovery techniques and identification of stakeholder; types of requirements, systems modelling; requirements validation. Software Design: design representation forms; system architectures; design patterns; Software Testing: unit, integration and systems testing, reviews and inspections. Software Quality and Process: software standards, process maturity models; cost estimation techniques; Measurement and Evaluation: Understanding the provenance of software engineering knowledge through measurement, metrics and empirical evaluation. Project Management: preparing to be a manager; effective teamwork and leadership; team development.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able to

CO1. Have knowledge of current software development practices that is relevant and applicable to software development in industry

CO2. An appreciation of the challenges facing the software development industry in terms of the software development practices and processes

CO3. Have an appreciation of the challenges facing the software development industry in terms of the software development process and general project management

CO4. Have an understanding of project management theory and techniques

CO5. Be able to describe and analyse how each of the issues within software engineering Interrelate

CO6. Have gained additional knowledge of the problems faced in 'real world computing' from representatives of industrial software development companies

CO7. Have a detailed understanding of the important legal, ethical and moral issues relating to the building and use of computer applications

CO8. An ability to describe and analyze the different core facets of software engineering and how they interrelate

CO9. An ability to critically analyze systems with regard to the principles of software engineering so that this analysis aids the production and maintenance of software applications



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

(Re-accredited with B+ Grade by NAAC)

Tirupattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BCE6PR : Project Work & Viva-Voce:

#### Course Description:

The final year project is one of the most important aspects of the B.Sc. computer science degree. The B.Sc. Computer Science curriculum is based on theoretical and laboratory. Besides that students complete a software project in the final year of the program.

#### Course Objectives

- The students are prepared to serve as project leaders and team members who add value through the project course. To expose student to industry-standard project practices, through a real-life project work under time and deliverable constraints, applying the knowledge acquired through various courses.
- 1. The students will be allowed to work on any project based on the concepts studied in core/elective courses.
- 2. The project work should be compulsorily done in the college only under the supervision of the department staffs.
- 3. The combined project shall be undertaken by the students as a team of two.
- 4. The number of teams should be equally assigned to existing Staff members.
- 5. The following list of parameters taken into account for the evaluation of Project work and Viva-voce.

#### Course Outcome (COs)

Upon successful completion of this course, students will be able

CO1. To provide an opportunity to apply the knowledge gained through various courses in solving a real life problem.

CO2. To provide an opportunity to practice different phases of software/system development life cycle.

CO3. To introduce the student to a professional environment and/or style typical of a global IT industry,

CO4. To provide an opportunity for structured team work and project management.

CO5. To provide an opportunity for effective, real-life, technical documentation.

CO6. To provide an opportunity to practice time, resource and person management.



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

(Re-accredited with B+ Grade by NAAC)

Tirupattur - 630 211.

### B.Sc. Computer Science Programme

#### 7BC EE3A: VB.NET and ASP.NET programming:

##### Course Description:

This course will cover the practical aspects of application development using the .NET framework. Technologies covered include the Common Language Runtime (CLR), .NET framework classes, C#, ASP.NET, and ADO.NET.

##### Course Objectives

- Students will be able
- 1. To learn .NET framework and CLR.
- 2. To learn VB.NET IDE and VB.Net language constructs.
- 3. To learn ASP.NET IDE and ASP.Net language constructs.
- 4. To learn Server side programming:.

##### Course Outcome (COs)

Upon successful completion of this course, students will be able

CO1. To understand the development and deployment cycles of enterprise applications.

CO2. To utilize the .NET framework to build applications.

CO3. To develop ASP.NET Web Services and equivalent VB.NET Web Services,

CO4. To understand the 3-tier software architecture

CO5. To develop web applications using a combination of client-side (JavaScript, HTML, XML, WML) and server-side technologies (ASP.NET, ADO.NET).



## ARUMUGAM PILLAI SEETHAI AMMAL COLLEGE

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Tiruppattur - 630 211.

### B.Sc. Computer Science Programme

#### 7SBS6B4: Fruit and vegetable Preservation Skills:

#### Course Description:

This course provides education and training in Fruit and vegetable preservation.

#### Course Objectives

- 1. To understand the science, principles and techniques involved in fruits and vegetables preservation techniques
- 2. To impart thorough knowledge on the technical skills in various aspects of food processing and preservation

#### Course Outcome (COs)

Upon successful completion of this course, students will be able

CO1. To understand the various preservation methods.

CO2. To know preservation equipment and containers.

CO3. To know about vegetables preservation techniques.

CO4. To know about Fruits preservation techniques

CO5. To understand the science involved in preservation.