

# *Annai Hajira Women's College*

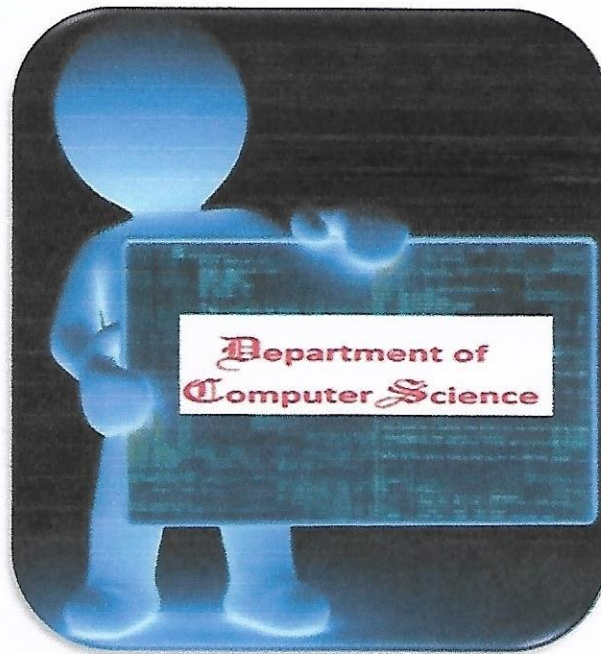
## *Department of Computer Science*

Syllabus 2020 - 2023

PO, PSO & CO's of Computer Science

UG-Programme – CBCS – SEMESTER PATTERN

Course Code: CS



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UG - Programme - Course Structure under CBCS

B. Sc - Computer Science

(Applicable to the candidates admitted from the academic year 2020-2023 onwards)

FIRST SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
A1TL11	Part – I Language : Tamil	6	---	4
A2EN11	Part – II Language : Communicative English	6	---	4
AMCS11	Part III Core 1 : Programming in C	4	---	4
AMCSP1	Major Practical – I : Programming in C	---	4	2
APPS11	Add on Major : Professional English for Physical Sciences - I	4	---	4
AACS11	Allied 1 : Theory Discrete Mathematics	4	---	3
AEVS11	Part IV : Environmental Studies	2	---	2
Total	(6T + 1P Courses)	26	4	23

SECOND SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
A1TL21	Part – I Language : Tamil	6	---	4
A2EN21	Part – II Language : Communicative English	6	---	4
AMCS21	Part III Core 2 : Theory Object Oriented Programming in C++	4	---	4
AMCSP2	Major Practical – II : Programming in C++	---	4	2
APPS21	Add on Major : Professional English for Physical Sciences - II	4	---	4
AACSP1	Allied 2 : Practical Linux	---	4	2
AVBE21	Part IV : Value Based Education	2	---	2
Total	(6T + 2P Courses)	22	8	22

### THIRD SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
AMCS31	Part – III Core 3: Theory Java Programming	5	---	4
AMCS32	Part – III Core 4: Theory Digital Design	4	---	4
AMCSP3	Major Practical – III : Java Programming	---	6	3
AACS31	Allied 3 : Theory Scripting Languages	4	---	3
AACSP3	Allied Practical - III : Scripting Languages	---	4	2
ASCS31	Part – III Skilled Based I Core: Theory Introduction to Big Data Analytics	5	---	4
ANCS32	Part – IV: Non Major Elective I : Theory Basic Programming Design	2	---	2
AYOG31	Part – IV : Common Yoga	2	---	2
Total	(6T + 2P Courses)	22	10	24

### FOURTH SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
AMCS41	Part – III Core 5: Theory Data Structures	5	---	4
AMCS42	Part – III Core 6: Theory Computer Architecture	5	---	4
AMCSP4	Major Practical – IV : Data Structure Lab	---	5	2
AACS41	Allied 4 : Theory Machine Learning	4	---	3
ASCS41	Skilled Based Core II: Theory Multimedia Applications	5	---	4
AACSP4	Allied Practical - IV : Python	---	4	2
ANCS41	Part – IV: Non Major Elective I : Theory HTML	2	---	2
ACDE41	Part – IV : Common Computers for Digital Era	2	---	2
Total	(6T + 1P Courses)	23	9	23

FIFTH SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
AMCS51	Part III Core 7 : Theory Relational Database Management System	4	---	4
AMCS52	Part III Core 8 : Theory Data Communication and Computer Networks	5	---	4
AMCS53	Part III Core 9 : Theory PHP and MySQL	5	---	4
AMCSP5	Major Practical – V : PHP and MySQL Lab	---	4	2
AMCSP6	Major Practical – VI : Machine Learning Practicals	---	5	2
AECS53	Major Elective I : Theory Cloud Computing	5	---	4
ACSB51	Part III Skilled Based Common : Theory Personality Development	2	---	2
Total	(5T + 2P Courses)	21	9	22

SIXTH SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
AMCS61	Part III Core 10 : Theory Operating System	5	---	4
AMCS62	Part III Core 11 : Theory Software Engineering and Testing	4	---	4
AMCS63	Part III Core 12: Theory Computer Graphics and Visualization	5	---	4
AMCS64	Part III Core 13: Theory Introduction to Digital Image Processing	4	---	4
AMCSP7	Major Practical – VII : Computer Graphics Lab	---	4	2
AECS61	Major Elective II : Theory Internet of Things	4	---	4
AMCS6P	Project: Digital Image Processing Using Scilab	---	4	6
Total	(5T + 3P Courses)	22	8	28

## Programme Outcome

Upon completion of the programme, our students are expected to:

Programme Outcomes	
PO1	Have attained theoretical and practical knowledge that underpins the various areas of computer science.
PO2	Have acquired basic computing skills and a selected set of skills that is currently in demand in IT field at the local and global levels.
PO3	Have obtained varied knowledge on socially important aspects from inter-disciplinary courses.
PO4	Manage the hardware and software components in a computer system independently.
PO5	Secure the prospective career on venture into a commercially viable software industry.
PO6	Be endowed with exemplary character ethics to lead emotional, social, intellectual, physical healthy life.
PO7	Have a good command of the English language for professional communication.
PO8	Be aware of professional, ethical and social issues in the IT field.
PO9	Have impived essence of social service leading to the overall progress of the nation.

## Programme Specific Outcome

After crowning with a Bachelor of Science degree in Computer Science, the students would be able to:

PSO1	Use her knowledge in skills in a given area of career effectively and also exhibit her aptitude overcoming challenges successfully.
PSO2	Shine as a software programmer, coding, testing, scripting and thrive in the software industry.
PSO3	Work as a team leader and a responsible employee whose strengths come from an ability to extract and contribute to divergent teams.
PSO4	Involve in ever growing research activities and develop expertise in innovative software programs.

## Course Outcome

### FIRST SEMESTER

The Students are able to:

AMCS11	<b>Part III Core 1: Programming in C</b>	<p><b>CO1</b> Obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill</p> <p><b>CO2</b> Develop basic understanding of computers, the concept of algorithm and algorithmic thinking</p> <p><b>CO3</b> Develop the ability to analyse a problem, develops an algorithm to solve it</p> <p><b>CO4</b> Develop the use of the C programming language to implement various algorithms, and develops the basic concepts and terminology of programming in general</p> <p><b>CO5</b> Introduce the more advanced features of the C Language</p>
AMCSP1	<b>Major Practical – I Programming in C</b>	<p><b>CO1</b> Develop skills in implementing algorithms through the programming Language C and to explore the features of C by applying sample problems</p> <p><b>CO2</b> Acquire logical thinking, Implement the algorithms and analyse their complexity, Identify the correct and efficient ways of solving problems</p> <p><b>CO3</b> Implement real time applications using the power of C language features</p>
APPS11	<b>Add on Major Professional English for Physical Sciences - I</b>	<p><b>CO1</b> Recognise their own ability to improve their own competence in using the language.</p> <p><b>CO2</b> Use language for speaking with confidence in an intelligence and acceptable manner.</p> <p><b>CO3</b> Understand the importance of reading for life.</p> <p><b>CO4</b> Read independently unfamiliar texts with comprehension.</p> <p><b>CO5</b> Understand the importance of writing in academic life.</p>
AACS11	<b>Allied 1 : Theory Discrete Mathematics</b>	<p><b>CO1</b> Apply basic concepts for clear understanding of mathematical principles and to solve practical problems.</p> <p><b>CO2</b> Construct simple mathematical proofs and possess the ability to verify them.</p> <p><b>CO3</b> Skilfully expresses mathematical properties formally via the formal language of propositional logic and predicate logic.</p> <p><b>CO4</b> Specify and manipulate basic mathematical objects such as functions and relations and is able to verify simple mathematical properties that these objects possess.</p>
AEVS11	<b>Part IV: Environmental Studies</b>	<p><b>CO1</b> Understand concepts and methods from ecological and physical sciences and their application in environmental problem solving</p> <p><b>CO2</b> Appreciate the ethical, cross-cultural and historical context of environmental issues and the links between human and natural systems</p> <p><b>CO3</b> Understand the transnational character of environmental problems and ways of addressing those including interactions across local to global scales</p>

## SECOND SEMESTER

The Students are able to:

AMCS21	<b>Part III Core 2: Theory</b> Object Oriented Programming in C++	<p><b>CO1</b> Gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.</p> <p><b>CO2</b> Identify importance of object oriented programming and difference between structured oriented and object oriented programming features.</p> <p><b>CO3</b> Able to make use of objects and classes for developing programs.</p> <p><b>CO4</b> Able to use various object oriented concepts to solve different problems.</p>
AMCSP2	<b>Major Practical - II</b> Programming in C++	<p><b>CO1</b> Gain knowledge about the object oriented programming concepts and C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming by implementing sample programs.</p> <p><b>CO2</b> Creating simple programs using classes and objects in C++</p> <p><b>CO3</b> Implement Object Oriented Programming Concepts in C++</p> <p><b>CO4</b> Develop applications using stream I/O and file I/O</p>
APPS21	<b>Add on Major</b> Professional English for Physical Sciences - II	<p><b>CO1</b> Recognise their own ability to improve their own competence in using the language.</p> <p><b>CO2</b> Use language for speaking with confidence in an intelligence and acceptable manner.</p> <p><b>CO3</b> Understand the importance of reading for life.</p> <p><b>CO4</b> Read independently unfamiliar texts with comprehension.</p> <p><b>CO5</b> Understand the importance of writing in academic life.</p>
AACSP1	<b>Allied : Practical - II</b> Linux	<p><b>CO1</b> Understand and make effective use of Linux utilities and Shell scripting language to solve problems.</p> <p><b>CO2</b> Able to understand the basic commands of Linux operating system and can write shell scripts.</p> <p><b>CO3</b> Able to create file systems and directories and operate them.</p>
AVBE21	<b>Part IV:</b> Value Based Education	<p><b>CO1</b> Enable the students to understand the social realities and to inculcate an essential value system towards building a healthy society.</p> <p><b>CO2</b> Understand the importance of value based living.</p> <p><b>CO3</b> Gain deeper understanding about the purpose of their life.</p> <p><b>CO4</b> Understand and start applying the essential steps to become good leaders.</p> <p><b>CO5</b> Emerge as responsible citizens with clear conviction to practise values and ethics in life.</p> <p><b>CO6</b> Become a value based professional.</p>

*P. S. Siva*  
11/8/2020

**HOD Signature**

Head of the Department of  
Computer Science

Annai Hajira Women's College,  
Melapalayam.

*Lajee Kulkarni*  
Principal Signature

**PRINCIPAL**

**ANNAI HAJIRA WOMEN'S COLLEGE**  
MELAPALAYAM - 627 005.

### THIRD SEMESTER

The Students are able to:

AMCS31	<b>Part III Core 3: Theory</b> Java Programming	<p><b>CO1</b> Understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems.</p> <p><b>CO2</b> Read and understand Java-based software code of medium-to-high complexity.</p> <p><b>CO3</b> Use standard and third party Java's API's when writing applications.</p> <p><b>CO4</b> Understand the basic principles of creating Java applications with graphical user interface (GUI).</p>
AMCSP3	<b>Major Practical - III</b> Java Programming	<p><b>CO1</b> Develop skills in implementing algorithms through the programming Language JAVA and to explore the features of JAVA by applying sample problems.</p> <p><b>CO2</b> Implement front end and back end of an application.</p> <p><b>CO3</b> Implement classical problems using java programming</p>
AMCS32	<b>Part III Core 4: Theory</b> Digital Design	<p><b>CO1</b> Understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.</p> <p><b>CO2</b> Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.</p> <p><b>CO3</b> To understand and examine the structure of various number systems and its application in digital design.</p> <p><b>CO4</b> The ability to understand, analyse and design various combinational and sequential circuits.</p>
AAC331	<b>Allied III : Theory</b> Scripting Languages	<p><b>CO1</b> To Understand the concepts of scripting languages for developing web-based projects.</p> <p><b>CO2</b> Ability to understand the differences between Scripting languages and programming languages.</p>
AACSP3	<b>Allied : Practical - III</b> Scripting Languages	<p><b>CO1</b> Develop knowledge in web-based projects.</p> <p><b>CO2</b> Used to automate processes at the application level.</p>
ASCS31	<b>Skilled Based Core - I</b> Introduction to Big Data Analytics	<p><b>CO1</b> Able to understand the building blocks of Big Data.</p> <p><b>CO2</b> Understand the specialized aspects of big data with the help of different big data applications.</p> <p><b>CO3</b> Able to represent the analytical aspects of Big Data.</p>
ANCS32	<b>Non Major Elective I</b> NME – Basic Programming Design	<p><b>CO1</b> Study the basic concepts of Programming and understand the structures of programming constructs.</p> <p><b>CO2</b> Study how to write algorithms and draw flowcharts.</p> <p><b>CO3</b> Study about the generation of programming languages, evolution of internet and relationship between software and hardware.</p>
AYOG31	<b>Part – IV:</b> Yoga	<p><b>CO1</b> Enable the student to have good health.</p> <p><b>CO2</b> Practice mental hygiene.</p> <p><b>CO3</b> Possess emotional stability.</p> <p><b>CO4</b> Integrate moral values.</p> <p><b>CO5</b> Attain higher level of consciousness.</p>

## FOURTH SEMESTER

The Students are able to:

AMCS41	<b>Part III Core 5: Theory</b> Data Structures	<p><b>CO1</b> Understand the concepts of basic data structures such as stack, Queues and Linked list.</p> <p><b>CO2</b> Have general understanding of the network structures through trees and graph.</p> <p><b>CO3</b> Make the students to understand the basic algorithms for sorting.</p>
AMCSP4	<b>Major Practical - IV</b> Data Structures	<p><b>CO1</b> Develop skills in implementing data structure algorithms</p> <p><b>CO2</b> Able to design and analyse the time and space efficiency of the data structure.</p> <p><b>CO3</b> Capable to identify the appropriate data structure for given problem.</p> <p><b>CO4</b> Have practical knowledge on the applications of data structures.</p>
AMCS42	<b>Part III Core 4: Theory</b> Computer Architecture	<p><b>CO1</b> Understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.</p> <p><b>CO2</b> Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.</p> <p><b>CO3</b> To understand and examine the structure of various number systems and its application in digital design.</p> <p><b>CO4</b> The ability to understand, analyse and design various combinational and sequential circuits.</p>
AACSP4	<b>Allied IV : Theory</b> Machine Learning	<p><b>CO1</b> Introduce the basic concepts and techniques of Machine Learning.</p> <p><b>CO2</b> Have a thorough understanding of the Supervised and Unsupervised learning techniques</p> <p><b>CO3</b> Study the various probability based learning techniques</p> <p><b>CO4</b> Understand graphical models of machine learning algorithms</p>
ASCS41	<b>Skilled Based Core - II</b> Multimedia Applications	<p><b>CO1</b> Know about the various Applications of Multimedia.</p> <p><b>CO2</b> Describe the types of media and define multimedia system.</p> <p><b>CO3</b> Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).</p> <p><b>CO4</b> Use and apply tools for image processing, video, sound and animation.</p> <p><b>CO5</b> Apply methodology to develop a multimedia system.</p>
AACSP4	<b>Allied : Practical - IV</b> Python Lab	<p><b>CO1</b> Learn to program in Python and understand programming paradigms brought in by Python Expressions.</p> <p><b>CO2</b> Interpret the mathematical results in physical and other forms.</p> <p><b>CO3</b> Identify, formulate and solve the Linear Differential Equations.</p> <p><b>CO4</b> Classify and solve the contour integration of complex functions.</p>

ANCS41	<b>Non Major Elective I</b> NME – HTML	<b>CO1</b> Study the basic concepts of Web design using HTML. <b>CO2</b> Learn the various tags used in HTML. <b>CO3</b> Make use of Dynamic HTML.
ACDE41	<b>Part – IV:</b> Computers for Digital Era	<b>CO1</b> Create the awareness about the digital India among the student community. <b>CO2</b> Make the student to understand the role of computer in the day to day living. <b>CO3</b> Create the awareness about the e-learning and security issues.

*P. S. S.*  
25/7/22

HOD Signature

Head of the Department of  
Computer Science  
Annai Hajira Women's College,  
Melapalayam.

Principal Signature

*S. S. S.*  
25/7/22  
PRINCIPAL  
ANNAI HAJIRA WOMEN'S COLLEGE  
MELAPALAYAM - 627 005.

## FIFTH SEMESTER

The Students are able to:

AMCS51	<b>Part III Core 7: Theory</b> Relational Database Management System	<p><b>CO1</b> Understand relational database concepts and transaction management concepts in database system.</p> <p><b>CO2</b> Write SQL programs that use: procedure, function, package, cursor and exceptions.</p> <p><b>CO3</b> Use current techniques and tools necessary for complex computing practices.</p>
AMCS52	<b>Part III Core 8: Theory</b> Data Communication and Computer Networks	<p><b>CO1</b> Understand the concepts in computer network and data communication.</p> <p><b>CO2</b> Know about the various protocols used in network.</p>
AMCS53	<b>Part III Core 9: Theory</b> PHP and MySQL	<p><b>CO1</b> Learn and use open source database management system MySQL.</p> <p><b>CO2</b> Create dynamic web pages and websites.</p> <p><b>CO3</b> Connect web pages with database.</p> <p><b>CO4</b> Understand the concepts of open sources.</p>
AMCSP5	<b>Major Practical - V</b> PHP and MySQL Lab	<p><b>CO1</b> Develop knowledge about basic PHP programs.</p> <p><b>CO2</b> Analyze and solve common Web application tasks by writing PHP programs.</p>
AMCSP6	<b>Major Practical - VI</b> Machine Learning Practicals	<p><b>CO1</b> Appreciate the importance of visualization in the data analytics solution.</p> <p><b>CO2</b> Apply structured thinking to unstructured problems.</p> <p><b>CO3</b> Understand a very broad collection of machine learning algorithms and problems</p> <p><b>CO4</b> Develop an appreciation for what is involved in learning from data.</p>
AECS53	<b>Part III Major Elective – I: Theory</b> Cloud Computing	<p><b>CO1</b> Understand core concepts of cloud computing.</p> <p><b>CO2</b> Learn the fundamental concepts about data centers to understand the tradeoffs in power, efficiency and cost.</p> <p><b>CO3</b> Understand use of cloud storage in storage systems.</p>
ACSB51	<b>Part IV : Common</b> Personality Development	<p><b>CO1</b> Develop, exhibit and accurate sense of self.</p> <p><b>CO2</b> Develop and nurture a deep understanding of personal Motivation.</p> <p><b>CO3</b> Develop an understanding and practice personal and Professional responsibility.</p> <p><b>CO4</b> Demonstrate knowledge of personal beliefs and values and a commitment to continue personal reflection and reassessment.</p> <p><b>CO5</b> Learn to balance confidence with humility.</p> <p><b>CO6</b> Assert strengthened personal character and further an enhanced ethical sense.</p>

**SIXTH SEMESTER**

**The Students are able to:**

AMCS61	<b>Part III Core 10: Theory</b> Operating System	<p><b>CO1</b> Acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.</p> <p><b>CO2</b> Understand the basic working process of an operating system.</p> <p><b>CO3</b> Understand the importance of process and scheduling.</p> <p><b>CO4</b> Understand the issues in synchronization and memory management.</p>
AMCS62	<b>Part III Core 11: Theory</b> Software Engineering and Testing	<p><b>CO1</b> Understand the concepts of analysis, design and implementation of a software product.</p> <p><b>CO2</b> Have general understanding about object-oriented software engineering.</p> <p><b>CO3</b> Make students to get experience and be ready for the large scale projects in IT Industry.</p>
AMCS63	<b>Part III Core 12: Theory</b> Computer Graphics and Visualization	<p><b>CO1</b> Develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.</p> <p><b>CO2</b> Get through understanding of different topologies.</p> <p><b>CO3</b> Study the function of different layers.</p> <p><b>CO4</b> Get familiarized with different protocols and network components.</p>
AMCS64	<b>Part III Core 13: Theory</b> Introduction to Digital Image Processing	<p><b>CO1</b> Acquire the fundamental knowledge of introduction to Digital Image Processing.</p> <p><b>CO2</b> Understand the features present in Digital Image Processing.</p>
AMCSP7	<b>Major Practical - VII</b> Computer Graphics Lab	<p><b>CO1</b> Acquire skills in programming computer graphics.</p> <p><b>CO2</b> Acquire skills in multimedia concepts.</p>
AMCS6P	<b>Major Project</b> Digital Image Processing Using Scilab / Matlab	<p><b>CO1</b> Get knowledge about the basic programs on Digital Image Processing.</p> <p><b>CO2</b> Develop Fourier transform for image processing in frequency domain.</p> <p><b>CO3</b> Evaluate the methodologies for image segmentation, restoration.</p>
AECS61	<b>Part III Major Elective – II: Theory</b> Internet of Things	<p><b>CO1</b> Learn how the Internet of Things (IOT) has the potential to alleviate some of the world's most significant problems</p> <p><b>CO2</b> Learn IOT technology and architecture.</p>

*P. S. S. / 25/7/22*

HOD Signature

Head of the Department of  
Computer Science  
Annai Hajira Women's College,  
Melapalayam.

*Lojoe Dalk / 25/07/22*

Principal Signature

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