

# *Annai Hajira Women's College*

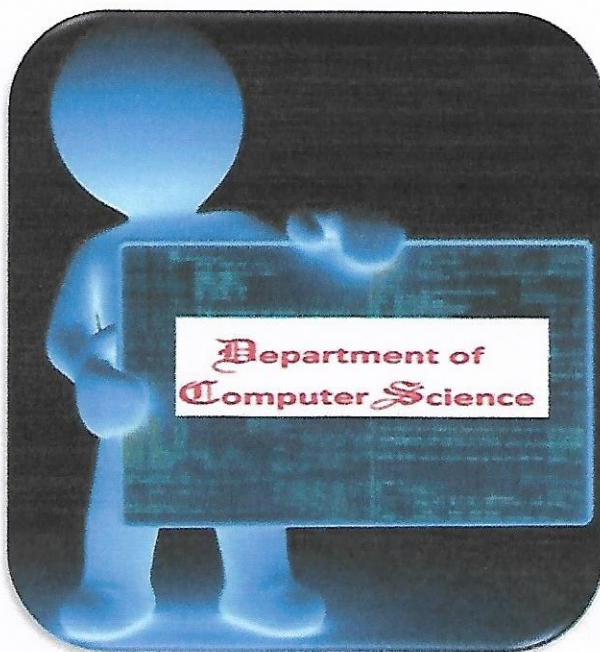
## *Department of Computer Science*

Syllabus 2016 - 2019

PO, PSO & CO's of Computer Science

UG-Programme – CBCS – SEMESTER PATTERN

Course Code: CS



e-mail: [csc@annaihajiracollege.com](mailto:csc@annaihajiracollege.com)

UG - Programme - Course Structure under CBCS

B. Sc - Computer Science

(Applicable to the candidates admitted from the academic year 2016-2019 onwards)

FIRST SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
J1TL11	Part – I Language : Tamil	6	---	3
J2EN11	Part – II Language : English	6	---	3
JMCS11	Part III Core 1 : Problem Solving Techniques and Programming in C	6	---	4
JMCSP1	Core : Practical - I Programming in C	---	4	4
JACS11	Allied 1 : Theory Discrete Mathematics	4	---	2
JACSP1	Allied : Practical - I Computer Basics	---	2	2
JEVS11	Part IV : Environmental Studies	2	---	2
Total	(5T + 2P Courses)	24	6	20

SECOND SEMESTER

Sub - Code	Subject Title	Lecture Hours	LAB Hours	Credits
J1TL21	Part – I Language : Tamil	6	---	3
J2EN21	Part – II Language : English	6	---	3
JMCS21	Part III Core 3 : Theory Object Oriented Programming in C++	6	---	4
JMCSP2	Major Practical - II Object Oriented Programming with C++	---	4	4
JACS21	Allied 2 : Theory Digital Design	4	---	4
JACSP1	Allied : Practical - II Computer Basics	---	2	4
JVBE21	Part IV : Value Based Education	2	---	2
Total	(5T + 2P Courses)	24	6	24

**THIRD SEMESTER**

<b>Sub - Code</b>	<b>Subject Title</b>	<b>Lecture Hours</b>	<b>LAB Hours</b>	<b>Credits</b>
JMCS31	Part III : Core 3: Theory Web Technology	6	---	4
JMCS32	Core 4 : Theory Java Programming	6	---	4
JMCSP3	Major Practical - III Java Programming	---	6	4
JACS31	Allied 3: Theory Computer Architecture	4	---	4
JACSP2	Allied : Practical - III Scripting Languages	---	2	2
JSCS3A	Part IV: Skill Based Practical Python	1	3	---
JNCS3A	Non Major Elective I Introduction to Computers	2	---	2
<b>Total</b>	<b>(4T + 3P Courses)</b>	<b>19</b>	<b>11</b>	<b>20</b>

**FOURTH SEMESTER**

<b>Sub - Code</b>	<b>Subject Title</b>	<b>Lecture Hours</b>	<b>LAB Hours</b>	<b>Credits</b>
JMCS41	Part III : Theory Core 5 : Data Structures	6	---	4
JMCSP4	Major Practical - IV Data Structures Lab	---	6	5
JMCS4B	Core : Theory – Elective I Embedded System	6	---	4
JACS41	Allied 4: Theory E-commerce	4	---	4
JACSP2	Practical - IV Scripting Languages	---	2	4
JSCS4A	Part IV: Skill Based Subject - II PHP	1	3	2
JNCS4A	Non Major Elective II Basic Programming Design	2	---	2
	Part V : Extension Activity	---	---	1
<b>Total</b>	<b>(5T + 3P Courses)</b>	<b>19</b>	<b>11</b>	<b>26</b>

**FIFTH SEMESTER**

<b>Sub - Code</b>	<b>Subject Title</b>	<b>Lecture Hours</b>	<b>LAB Hours</b>	<b>Credits</b>
JMCS51	Part III Core 6 : Theory Software Engineering and Testing	4	---	4
JMCS52	Core 7 : Theory Data Communication and Computer Network	4	---	4
JMCS53	Core 8 : Theory Dot Net Technologies	4	---	4
JMCSP5	Major Practical – V Dot Net	---	8	4
JMCS5C	Core : Theory – Elective II Cloud Computing	6	---	5
JCSB5A	Part IV : Common Personality Development	4	---	4
<b>Total</b>	<b>(5T+1P Courses)</b>	<b>22</b>	<b>8</b>	<b>25</b>

**SIXTH SEMESTER**

<b>Sub - Code</b>	<b>Subject Title</b>	<b>Lecture Hours</b>	<b>LAB Hours</b>	<b>Credits</b>
JMCS61	Core 9 : Theory Operating System	4	---	4
JMCS62	Core 10 : Theory Relational Database Management System	4	---	4
JMCS63	Core 11 : Theory Computer Graphics and Visualization	4	---	4
JMCS64	Core 12 : Theory Data Mining	4	---	4
JMCSP6	Major : Practical - VI RDBMS with Oracle Lab	---	8	4
JMCS6C	Major Elective - III Internet of Things	6	---	5
<b>Total</b>	<b>(5T+1P Courses)</b>	<b>22</b>	<b>8</b>	<b>25</b>

## Programme Outcome

Programme Outcomes	
PO1	To impart theoretical and practical knowledge that underpins the various areas of computer science.
PO2	To impart basic computing skills and a selected set of skills that is currently in demand in IT field.
PO3	To impart the selected set of skills that are requires for a computer professional in the global area.
PO4	To stimulate interest in humanities and thereby encourage an inter-disciplinary interest.
PO5	To create awareness on social, ethical and professional issues related to computers.
PO6	Manage the hardware and software components in a computer system independently and bloom either as a programmer in software industries.
PO7	Have sound skills in designing databases and managing them.
PO8	Have sound skills in designing web-based applications.
PO9	Have a good command of the English language for professional communication.
PO10	Have a variety of soft skills like technical documentation, presentation, quality awareness, team work, global outlook etc.
PO11	Be aware of professional, ethical and social issues in the IT field.

## Programme Specific Outcome

The strategy precise upshot for students after crowning a Bachelor of Science degree in Computer Science are that they will be:	
PSO1	Able to reckon vital knowledge, learn, adapt and successfully bring to bear analytical and computational approaches on changing societal and technological challenges.
PSO2	Work as a team leader and a responsible citizen whose strengths come from an ability to extract and contribute to divergent teams, skill and experiences.
PSO3	Propels scientific and State-of-the- Art technologies through technological innovation and industrialism.

## Course Outcome

### FIRST SEMESTER

#### The Students are able to:

JMCS11	<p align="center"><b>Part III Core 1: Problem Solving Techniques and Programming in C</b></p>	<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>
JMCS11	<p align="center"><b>Core 1 : Practical Programming in C Lab</b></p>	<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>
JACS11	<p align="center"><b>Allied 1 : Theory Discrete Mathematics</b></p>	<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 express 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>
JACSP1	<p align="center"><b>Allied 1 : Practical Computer Basics Lab</b></p>	<p><b>CO1</b> Develop skills in office automation by applying sample problems</p> <p><b>CO2</b> Create, edit, spread-sheet and present documents using the relevant application software</p> <p><b>CO3</b> Create, edit, format using documents</p> <p><b>CO4</b> Analyse the data using spread sheet</p> <p><b>CO5</b> Create databases, analyse reports, create queries</p>
JEVS11	<p align="center"><b>Part IV: Environmental Studies</b></p>	<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:

JMCS21	<b>Part III Core 2:</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>
JMCS21	<b>Core 2 : Practical</b> Object Oriented Programming with 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>
JACS21	<b>Allied 2 : 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>
JACSP1	<b>Allied 2 : Practical</b> Computer Basics - Linux Lab	<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>
JVBE21	<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>

## Semester – III

The Students are able to:

JMCS31	<b>Part III Core 3:</b> Web Technology	<p><b>CO1</b> Impart knowledge about the web technologies and their applications and to understand the basics of web designing.</p> <p><b>CO2</b> History and development of the World Wide Web and associated technologies.</p> <p><b>CO3</b> Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, JavaScript.</p> <p><b>CO4</b> Good design, universal design, multi-platform web applications.</p>
JMCS32	<b>Part III Core 4:</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>
JMCS33	<b>Core 3 : Practical</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>
JACS31	<b>Allied 3 : Theory</b> Computer Architecture	<p><b>CO1</b> Gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.</p> <p><b>CO2</b> Design basic and intermediate RISC pipelines, including the instruction set, data paths, and ways of dealing with pipeline hazards.</p>
JACS32	<b>Allied 3 : Practical</b> Scripting Languages Lab	<p><b>CO1</b> Insert a graphic within a web page.</p> <p><b>CO2</b> Create a link within a web page.</p> <p><b>CO3</b> Create a table within a web page.</p> <p><b>CO4</b> Insert heading levels within a web page.</p> <p><b>CO5</b> Insert ordered and unordered lists within a web page.</p> <p><b>CO6</b> Use cascading style sheets.</p>
JCS3A	<b>Skilled Based Practical - I</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>
JNCS3A	<b>Non Major Elective I NME</b> – Introduction to Computers	<p><b>CO1</b> Study the basic concepts of Programming and understand the structures of programming construct.</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>

## FOURTH SEMESTER

The Students are able to:

JMCS41	<b>Part III Core 5: Data Structures</b>	<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>
JMCS41	<b>Core 4 : Practical Data Structures Lab</b>	<p><b>CO1</b> Highlight the basic concepts of HTML and help the student to equip with the programming skills in implementing and developing web based applications</p> <p><b>CO2</b> Understand the concepts of Visual Basic</p> <p><b>CO3</b> Learn the advantages of Controls in VB</p> <p><b>CO4</b> Design and develop the event- driven applications using Visual Basic framework</p> <p><b>CO5</b> Apply the knowledge of database methods</p>
JMCS4B	<b>Core : Theory – Elective I Embedded System</b>	<p><b>CO1</b> Acquire knowledge about microcontrollers embedded processors and their applications.</p> <p><b>CO2</b> Foster ability to understand the internal architecture and interfacing of different peripheral devices with Microcontrollers.</p> <p><b>CO3</b> Foster ability to write the programs for microcontroller.</p> <p><b>CO4</b> Foster ability to understand the role of embedded systems in industry.</p>
JACS41	<b>Allied 4 : Theory E-Commerce</b>	<p><b>CO1</b> Impart knowledge about the web technologies and their applications and to understand the basics of web designing.</p> <p><b>CO2</b> Understand the basic concepts and technologies used in the field of management information systems.</p> <p><b>CO3</b> Have the knowledge of the different types of management information systems.</p> <p><b>CO4</b> Understand the processes of developing and implementing information systems.</p>
JACSP2	<b>Allied 4 : Practical Scripting Languages Lab</b>	<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>
JSCS4A	<b>Skilled Based Practical - II PHP Lab</b>	<p><b>CO1</b> Write PHP scripts to handle HTML forms.</p> <p><b>CO2</b> Write regular expressions including modifiers, operators, and meta characters.</p> <p><b>CO3</b> Create PHP programs that use various PHP library functions and that manipulate files and directories.</p>
JNCS4A	<b>Non Major Elective II Basic Programming Design</b>	<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>

## FIFTH SEMESTER

The Students are able to:

JMCS51	<b>Part III Core 6:</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 get experience and hands on training for the large scale projects in IT Industry</p>
JMCS52	<b>Part III Core 7:</b> Data Communication and Computer Networks	<p><b>CO1</b> Understand the concepts of data communication</p> <p><b>CO2</b> 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>
JMCS53	<b>Part III Core 8:</b> Dot Net Technologies	<p><b>CO1</b> Highlight the features of ASP.NET and apply it to develop various applications.</p> <p><b>CO2</b> Understand the concepts of .Net framework as a whole and the technologies that constitutes the frame work.</p> <p><b>CO3</b> Make the students to get experience and be ready for the large scale projects in IT industry.</p>
JMCS55	<b>Core 5 : Practical</b> Dot Net	<p><b>CO1</b> Learn to program in Dot Net and to develop web pages using ASP.NET</p> <p><b>CO2</b> Create user interactive web pages using ASP.Net.</p> <p><b>CO3</b> Create simple data binding applications using ADO.Net connectivity.</p> <p><b>CO4</b> Performing Database operations for Windows Form and web applications.</p>
JMCS5C	<b>Core : Theory – Elective II</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>
JCSB5A	<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:

JMCS61	<b>Part III Core 9: Operating System</b>	<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>
JMCS62	<b>Part III Core 10: Relational Database Management Systems</b>	<p><b>CO1</b> Learn the fundamental data models ,conceptualize and depict a database system using ER diagram</p> <p><b>CO2</b> Make a study of SQL and relational database design using Oracle</p> <p><b>CO3</b> Describe the fundamental elements of relational database management systems</p> <p><b>CO4</b> Design ER-models to represent simple database application scenarios</p> <p><b>CO5</b> Improve the database design by normalization</p>
JMCS63	<b>Part III Core 11: Computer Graphics and Visualization</b>	<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>
JMCS64	<b>Part III Core 12: Data Mining</b>	<p><b>CO1</b> Understand and implement classical models and algorithms in data warehousing and data mining</p> <p><b>CO2</b> Analyze the data, identify the problems, and choose the relevant models and algorithms to apply</p> <p><b>CO3</b> Assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior</p>
JMCS66	<b>Core 6 : Practical RDBMS with Oracle Lab</b>	<p><b>CO1</b> Acquire skills in SQL statements with various constructs.</p> <p><b>CO2</b> Acquire skills in PL/SQL Programming.</p>
JMCS6C	<b>Core : Theory – Elective II Internet of Things</b>	<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> To learn IOT technology and architecture.</p>

*P. S. Das*  
22/6/26

HOD Signature

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

*Lajal Dalu*  
Principal Signature  
PRINCIPAL 22/06/16

ANNAI HAJIRA WOMEN'S COLLEGE  
MELAPALAYAM - 627 005.