CAUVERY COLLEGE FOR WOMEN(AUTONOMOUS)

Nationally Accredited with 'A^{+}' Grade by NAAC

TIRUCHIRAPPALLI

PG DEPARTMENT OF INFORMATION TECHNOLOGY

B.Sc ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

SYLLABUS

2025 - 2026

Cauvery College for Women (Autonomous)

B.Sc Artificial Intelligence and Machine Learning

LEARNING OUTCOME-BASED CURRICULUM FRAMEWORK (CBCS –LOCF)

(For the Candidates admitted from the Academic year 2025-2026 and onwards)

PSO NO	Programme Specific Outcomes Students of B.Sc. Artificial Intelligence & Machine Learning will be able to	POs Addressed
PSO1	Analyze problems, identify key requirements, and define clear specifications to develop effective solutions in par with the expected quality standards for Artificial Intelligence and Machine Learning professional.	PO1
PSO2	Utilize technical skills gained from lab exercises, projects, internships, and value-added programs to tackle complex and interdisciplinary challenges.	PO4
PSO3	Design, Analyze, Interpret and execute AI problems and draw actionable conclusions for strategic decision-making.	PO2
PSO4	Develop ground-breaking ideas in artificial intelligence and machine learning domain to implement real world applications	PO4
PSO5	Adapt to modern platforms to enhance employability, foster entrepreneurship, and pursue higher education opportunities effectively	PO3

Semester	Part	Course	Course Title	Course Code	Inst. Hrs. /	Credits	Exam			Total
							Hrs	Marks		
								Int.	Ext	
I	I	Language Course - I (LC)	தமிழ் இலக்கிய வரலாறு - I	25ULT1	6	3	3	25	75	100
			Hindi Ka Samanya Gyan aur Nibandh	23ULH1						
			Poetry, Grammar and History of Sanskrit Literature	23ULS1						
			Foundation Course: Paper I- French – I	23ULF1						
	II	English Language Course- I(ELC)	General English - I	23UE1	6	3	3	25	75	100
	III	Core Course – I (CC)	Programming in C	25UAM1CC1	5	5	3	25	75	100
		Core Practical - I (CP)	Programming in C(P)	25UAM1CC1P	3	3	3	40	60	100
		First Allied Course-I (AC)	Linear Algebra and Calculus	25UAM1AC1	4	3	3	25	75	100
		First Allied Course-II (AC)	Probability and Statistics	25UAM1AC2	4	3	3	25	75	100
	IV	Ability Enhancement Compulsory Course-I (AECC)	UGC Jeevan Kaushal- Universal Human Values	25UGVE	2	2		100		100
	Total				**30**	**22**				**700**

Semester I	Internal Mark: 25		External Mark: 75	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**Hrs/Week**	**CREDITS**
25UAM1CC1	**PROGRAMMING IN C**	**CORE COURSE – I (CC)**	**5**	**5**

Course Objectives

- To familiarize the students with the understanding of code organization
- To improve the programming skills
- Learning the basic programming constructs.

Course Outcomes and Cognitive Level Mapping

CO Number	Course Outcome	Cognitive Level
CO1	Outline the fundamental concepts of C programming languages, and its features	K1
CO2	Demonstrate the programming methodology.	K2
CO3	Identify suitable programming constructs for problem solving.	K3
CO4	Select the appropriate data representation, control structures, functions and concepts based on the problem requirement.	K4
CO5	Evaluate the program performance by fixing the errors.	K5

Mapping of CO with PO and PSO

	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	2	2	3	2	1	2	2	2	3	2
CO2	3	2	3	2	2	3	3	2	3	2
CO3	3	3	3	2	2	3	3	2	3	3
CO4	3	2	3	2	3	2	2	2	3	3
CO5	3	3	3	2	3	3	3	2	2	3

"1" – Slight (Low) Correlation "2" – Moderate (Medium) Correlation
"3" – Substantial (High) Correlation "-" indicates there is no correlation.

Syllabus

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Overview of C: History of C- Importance of C- Basic Structure of C Programs- Executing a C Program- Constants, Variables and Data types - Operators and Expressions - Managing Input and Output Operations	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
II	**Decision Making and Branching:** Decision making with If, simple IF, IF ELSE, nested IF ELSE , ELSE IF ladder, switch, GOTO statement.**Decision Making and Looping**: While, Do-While, For, Jumps in loops.Arrays - Character Arrays and Strings.	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
III	**User Defined Functions:** Elements of User Defined Functions- Definition of Functions- Return Values and their Types- Function Call- Function Declaration- Categories of Functions- Nesting of Functions-Recursion	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
IV	**Structures and Unions:** Introduction- Defining a Structure- Declaring Structure Variables Accessing Structure Members- Structure Initialization- Arrays of Structures- Arrays within Structures- Unions- Size of Structures **Pointers:** Understanding Pointers- Accessing the Address of a Variable- Declaring Pointer Variables- Initializing of Pointer Variables- Accessing a Variable through its Pointer- Chain of Pointers- Pointer Expressions- Pointer and Scale Factor- Pointer and Arrays- Pointers and Character Strings- Array of Pointers- Pointer as Function Arguments- Pointers and Structures-	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5
V	File Management in C-**Dynamic Memory Allocation**-Allocating a Block of Memory- Allocating a Multiple Blocks of Memory-Releasing the used space-Altering the Block of Memory-The Preprocessor-Macro substitution-Bit Level Programming	15	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

VI	**Self Study for Enrichment** (Not included for End Semester Examinations) Algorithm- Flowchart- Develop algorithms for real time scenario- Simple expressions- Conversion programs- swapping numbers (with and without using temporary variable). Programs for checking eligibility-Triangle formation-Sum of series-Array manipulations (Sorting, searching, insert, delete and merging)-String handling programs - Employee pay bill preparation, Student mark list using Files.	-	CO1, CO2, CO3, CO4, CO5	K1, K2, K3, K4, K5

Textbooks

1. E. Balaguruswamy, (2010), ―Programming in ANSI C‖, Fifth Edition, Tata McGraw Hill Publications.

References

1. Ashok N. Kamthane, Amit Ashok Kamthane (2015). Programming in C, 3rd Edition, Pearson India Education Services Pvt. Ltd.
2. Byron Gottfried, (2010), ―Programming with C‖, Schaums Outline Series, Tata McGraw Hill Publications

Web References

1. https://www.learn-c.org/
2. https://www.cprogramming.com/
3. https://www.tutorialspoint.com/cprogramming/index.html
4. http://www.programiz.com/c-programming
5. http://www.programmingsimplified.com/c-program-examples

Pedagogy

Chalk and Talk, PPT, Discussion, Assignment, Demo, Quiz and Seminar.

Course Designer

1. Dr. S.Suguna Devi, Associate Professor, Department of Information Technology.

Semester I	Internal Mark: 40		External Mark: 60	
COURSE CODE	**COURSE TITLE**	**CATEGORY**	**Hrs/Week**	**CREDITS**
25UAM1CC1P	**Programming in C (P)**	**CORE COURSE- I (CP)**	**3**	**3**

Course Objectives

- The Course aims to provide exposure to problem-solving through C programming
- It aims to train the student to the basic concepts of the C -Programming language
- Apply different concepts of C language to solve the problem

Course Outcomes and Cognitive Level Mapping

CO Number	CO Statement	Cognitive Level
CO1	Demonstrate the understanding of syntax and semantics of C programs.	K1
CO2	Identify the problem and solve using C programming techniques.	K2
CO3	Identify suitable programming constructs for problem solving.	K3
CO4	Analyze various concepts of C language to solve the problem in an efficient way.	K4
CO5	Develop a C program for a given problem and test for its correctness.	K5

Mapping with Programme Outcomes

COs\ POs	PSO1	PSO2	PSO3	PSO4	PSO5	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2	2	3	1	2	3
CO2	3	2	3	2	3	3	2	2	2	3
CO3	3	2	2	2	2	3	3	2	3	2
CO4	3	3	2	3	2	3	3	2	3	3
CO5	3	3	3	2	3	3	3	3	2	3

"1" – Slight (Low) Correlation **"2" – Moderate (Medium) Correlation**
"3" – Substantial (High) Correlation **"-" indicates there is no correlation.**

Syllabus

1. Programs using Input/ Output functions
2. Programs on conditional structures
3. Programs using Looping structures
4. Programs using Arrays
5. String Manipulations
6. Programs using Functions
7. Recursive Functions
8. Implement Files by using Structures and Pointers
9. Implement a program using various Dynamic memory allocation constructs
10. Program to implement various Bitwise operators.

Text Book

1. E. Balagurusamy, Programming in ANSI C, Fifth Edition, Tata McGraw-Hill, 2010.

Reference Books

1. Byron Gottfried, Schaum's Outline Programming with C, Fourth Edition, Tata McGraw-Hill, 2018.
2. Kernighan and Ritchie, The C Programming Language, Second Edition, Prentice Hall, 1998.
3. Yashavant Kanetkar, Let Us C, Eighteenth Edition, BPB Publications, 2021

Web References

1. https://www.tutorialspoint.com/cprogramming
2. https://www.javatpoint.com/c-programming-language-tutorial
3. https://www.w3schools.in/category/c-tutorial

Course Designer

Dr. S.Suguna Devi, Associate Professor, Department of Information Technology