

4Maharashtra State Board of Technical Education, Mumbai

TEACHING PLAN (TP)

K-1

Academic Year: 2025-26

Date: 13/12/2025

Institute Name & Code: K. K. Wagh Polytechnic, Nashik-3 (0078)

Program & Code: Artificial Intelligence & Machine Learning (AN) **Course Code & Abbr.:** 312303 (PIC)

Course Name: Programming in C

Name of Faculty: Mr. H. M. Gaikwad

Class: FYAN-Nova

Course Index: 203

Semester: II

Scheme: K

Total Hrs: 60

● Teaching-Learning and Assessment Scheme:

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme						Credits	Paper Duration	Assessment Scheme									
				Actual Contact Hrs/Week			SLH	NLH	Theory				Based on LL & TSL Practical				Based on SL		Total Marks		
				CL	TL	LL			FA-TH			SA-T-H	Total		FA-PR		SA-PR			SLA	
Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min										
312302	Programming in C	PIC	AEC	4	1	4	1	10	5	3	30	70	100	40	50	20	50#	20	25	10	225

Abbreviations: CL- Class Room Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @\$ Internal Online Examination

● Course Outcomes (COs) & Theory Learning Outcomes (TLOs):

By learning course, Programming in C (PIC-312303) First Year students will be able to:

CO No.	TLO No.	Course Outcomes (COs) / Theory Learning Outcomes (TLOs)
CO203.1		Develop C program using input - output functions and arithmetic expressions.
	TLO 1.1	Write algorithm for given problemstatement.
	TLO 1.2	Identify the given building blocks of a C Program.
	TLO 1.3	Use basic constructs like constants,variables, data types for developing C program
	TLO 1.4	Write C programs using printf() and scanf() functions.
	TLO 1.5	Write C programs using arithmetic operators, bitwise operators.
CO203.2		Develop C program involving branching and looping statements
	TLO 2.1	Write a 'C'program using decisionmaking statements.
	TLO 2.2	Use loop statements in C programto solve iterative problems.
	TLO 2.3	Use appropriatestatement to alter the program flow in the loop
CO203.3		Implement Arrays and structures using C programs
	TLO 3.1	Write a C Program to perform operations on one-dimensional array.
	TLO 3.2	Declare, initialize, and accesselements of two-dimensional array.
	TLO 3.3	Declare, initializeand access data using Structure.
	TLO 3.4	Explain typedef and enum
CO203.4		Develop C program using user-defined functions
	TLO 4.1	Explain need of Functions in C program.
	TLO 4.2	Write C Programinvolving C library functions.
	TLO 4.3	Write user defined functions forgiven problem in C program.
	TLO 4.4	Write C Programfor calling function by 'value' and calling function by 'reference'
	TLO 4.5	Implement recursive functions in CProgram.
CO203.5		Write C program using pointer
	TLO 6.1	Declare and Define Pointer Variable.

	TLO 6.2	Write C program to print the address and values of pointer variables.
	TLO 6.3	Write C program to perform arithmetic operations using pointers
	TLO 6.4	Write C Program to perform operations on Arrays using Pointers.
	TLO 6.5	Explain string related operations using pointer.
	TLO 6.6	Access individual variable of structure using Pointer

● **Teaching Plan:**

Unit No. (Allotted Hrs.) Marks	TLOs	Title/Topic Details with CO	Plan (From-To & No. of Lectures)	Actual Execution (From-To & No. of Lectures)	Pedagogy used (Teaching Method/ Media)	Remark
01 (10) 12M		Unit-1: Basics of 'C' Programming [CO203.1]				
	1.1	1.1 Fundamentals of algorithms: Notion of algorithm, Notations used for assignment statements and basic control structures.	15/12/25 To 16/12/25 (02)		Chalk, Board, PPTs, Quiz, Web References	
	1.2	1.2 Introduction to 'C': General structure of 'C' program, Header file, 'main ()' function				
	1.3	1.3 Fundamental constructs of 'C': Character set, tokens, keywords, Identifiers, Constants - number constants, character constants, string constants, Variables. Data types in 'C': Declaring variables, data type conversion.	17/12/25 To 22/12/25 (03)			
	1.4	1.4 Basic Input and Output functions: input and output statements using getchar(), putchar(), printf(), scanf() functions.	23/12/25 To 29/12/25 (04)			
	1.5	1.5 Assignments and expressions: simple assignment statements, arithmetic operators, shift operators, bitwise operators, sizeof operator	30/12/25 (01)			
02 (14) 16M		Unit-2: Control Structures [CO203.2]				
	2.1	2.1 Conditional statements: Relational operators, logical operators,	31/12/25 To 02/01/26 (02)		Chalk, Board, PPTs, Quiz, Web References	
	2.1	2.2 if statement, if-else statements, nested if-else statements, .	02/01/26 To 09/01/26 (04)			
	2.1	2.3 if-else ladder, switch statement	12/01/26 To 13/01/26 (02)			
	2.2	2.4 Looping statements : while loop, do... while loop, for loop, Nested loops.	14/01/26 To 20/01/26 (04)			
	2.3	2.5 Branching Statements: goto statement, use of 'break' and 'continue' statements.	21/01/26 To 23/01/26 (02)			
03 (12) 16M		Unit-3: Arrays & Structures [CO203.3]				
	3.1	3.1 Characteristics of an array, One dimension and two dimensional arrays, concept of multi-dimensional arrays, Array declaration and Initialization.	30/01/26 To 02/02/26 (02)		Chalk, Board, PPTs, Quiz, Web References	
	3.1 3.2	3.2 Operations on Arrays, Programs using one & two dimension arrays	03/02/26 To 09/02/26 (04)			

	3.1 3.2	3.3 Character and String input/output and String related operations	10/02/26 To 13/02/26 (03)			
	3.3	3.4 Introduction and Features of Structures, Declaration and Initialization of Structures, array of structures	16/02/26 To 18/02/26 (03)			
	3.4	3.5 typedef, & Enumerated Data Type				
4 (12) 14M		Unit-4: Functions [CO203.4]			Chalk, Board, PPTs, Quiz, Web References	
	4.1 4.2	4.1 Concept and need of functions, Library functions: Math functions, String handling functions, other miscellaneous functions such as , malloc(), calloc().	20/02/26 To 23/02/26 (02)			
	4.3	4.2 Writing User defined functions - function definition, functions declaration, the 'return' statement, function call, function return values, function return types	24/02/26 To 02/03/26 (04)			
	4.3	4.3 scope of variables - local variables, global variables.	02/03/26 (01)			
	4.4	4.4 Function parameters: Parameter passing- call by value & call by reference, ,declaring function return types,	03/03/26 To 06/03/26 (03)			
	4,5	4.5 Recursive functions.	09/03/26 To 10/03/26 (02)			
5 (12) 12M		Unit-5: Pointer [CO203.5]			Chalk, Board, PPTs, Quiz, Web References	
	5.1 5.2	5.1 Introduction to Pointers : Definition, use of pointers, ‘*’ and ‘&’ operators, declaring, initializing, accessing pointers	11/03/26 To 16/03/26 (03)			
	5.3	5.2 Pointer arithmetic	17/03/26 (01)			
	5.4	5.3 Pointer to array	18/03/26 To 23/03/26 (03)			
	5.5	5.4 Pointer and Text string	24/03/26 To 25/03/26 (02)			
	5.5	5.5 Function handling using pointers	27/03/26 To 30/03/26 (02)			
	5.6	5.6 Pointers to structure	31/03/26 (01)			
60 Hrs.		Total	60 Hrs.			

• COs-POs & PSOs Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes PSOs	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO203.1	3	2	2	1	-	-	1	3	2
CO203.2	2	3	3	2	-	-	2	3	2
CO203.3	2	3	3	3	-	2	2	3	2
CO203.4	1	3	3	3	1	2	3	3	2
CO203.5	1	3	3	3	1	1	3	3	2

Legends: High:03, Medium:02, Low:01, No Mapping: -

PSO1: Apply fundamental concepts of Computer Engineering and Artificial Intelligence and machine learning to solve technical problems.

PSO2: Implement the domain knowledge to achieve successful career as an engineering professional.

• Self-Learning:

- Complete any one course related to Programming in C on Infosys Springboard.
- Micro-Project- Develop an application using C language code for relevant topics.

• Formative Assessment (Assessment for Learning) :

- Two offline class tests of 30 marks each will be conducted. Average of two class tests marks will be consider as Formative Assessment for Theory marks out of 30.

• Summative Assessment (Assessment of Learning)

- End semester assessment of 70 marks through paper based examination by MSBTE
- Total theory marks (100) will be calculated as marks of Formative Assessment (30) + marks of Summative Assessment (70)

• References:

1. Suggested Books:

Sr. No	Author	Title	Publisher
1	E. Balaguruswamy	Programming in ANSI 'C'	Mcgraw Hill Publications
2	Yashwant Kanetkar	Let us 'C'	BPB Publication
3	David Griffiths, Dawn Griffiths	Head First C	O'Reilly Media, Inc.

2. Learning Web Sites:

Sr. No.	Link /Portal	Description
1	https://nptel.ac.in/courses/106104128	C Programming
2	https://jsommers.github.io/cbook/control.html	Control structures, flow control statements in C
3	https://www.learn-c.org/en/Functions	Functions
4	https://www.simplilearn.com/tutorials/c-tutorial/pointers-in-c	Pointers
5	https://www.w3schools.com/c/	C Programming
6	https://www.javatpoint.com/c-programming-language-tutorial	C Programming tutorial
7	https://www.programiz.com/c-programming	C Programming
8	https://www.programiz.com/c-programming/online-compiler/	online C compiler

3. Learning URLs of self-prepared YouTube Videos:

Sr. No.	URL of YouTube Video	Topic
1	https://youtu.be/JoS3lPACY9Y?si=lfV-p7cSxOcd0CU5	How to use TC Compiler TCC 3.0 IDE
2	https://youtu.be/aPuTCf5BSCY?si=45SRit2-PVmc1PA2	Basics of C Programming
3	https://youtu.be/5GB_rjnvjcI?si=uPyvOsIqfmPnrjRN	Decision Making in 'C'
4	https://youtu.be/CQTzX1dcMZc?si=BxRqC9E9tQGLiYAf	Concept of Pointer in C
5	https://youtu.be/oL_cjhlYsPk?si=HN3iZCidirA2UkDG	Simple C programs using pointers
6	https://youtu.be/xBaEd7xn8Ks?si=-6FyDC5pv1vwV8fq	Pointers as Function Arguments
7	https://youtu.be/mF9WZ6sH_Do?si=W3G-T7r4gWujSpmR	Pointer to Array
8	https://youtu.be/rBQyzO6vEbM?si=bPE-11bME7ZVoSai	Layout of Micro Project in C Menu Drive C Code
9	https://youtu.be/q49NJKxFBUS?si=RMFBzl-UNf6MINHb	Guidelines for Exam Preparation- Programming in C

4. Learning URLs of referenced YouTube Videos:

Sr. No.	URL of YouTube Video	Topic
1	https://youtu.be/I6yCbQJK7Qc	While Loop in C Language
2	https://youtu.be/ziniheAJE8I	Do-While Loop in C Language
3	https://youtu.be/fu04NXbIeGo	What is Array in C Language?
4	https://youtu.be/WHAHvvJb1hs?si=1WLCqg20M4retGEq	Multi-Dimensional Array in C Language
5	https://youtu.be/WcQFqa24Wa8?si=0j4-GU_8C9RK8K1r	What is String in C Language?
6	https://youtu.be/8FXgYyMzMYA?si=kDiDMwgaCd0juFOw	Use of string.h ?
7	https://youtu.be/025pFwWJJcQ?si=O3Dg4zeulwUu7SjF	"Typedef" in C Language

5. **Tools:** Google classroom, MKCL LMS-Learn Live, YouTube

Mr. H.M. Gaikwad
(Ccourse Teacher)

Mrs. R. Y. Thombare
(HOD-AN)

CC- 1.Course File-PIC