

Maharashtra State Board of Technical Education, Mumbai

LABORATORY PLAN (LP)

K-2A

Academic Year: 2025–2026

Academic Year: 2025-26

Date: 15/12/2025

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: Ms. H. M.Somaiya

Class: FYAN-Neural

Course Index: 203

Semester: II

Scheme: K

Total Hrs: 60

Course Outcomes (COs):

By learning course Linux Basics (PIC-312303) First Year students will be able to:

- CO203.1 - Develop C program using input - output functions and arithmetic expressions.
- CO203.2 - Develop C program involving branching and looping statements.
- CO203.3 - Implement Arrays and structures using C programs.
- CO203.4 - Develop C program using user-defined functions.
- CO203.5 - Write C program using pointer.

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 Practical				Based on SL		Total Marks		
				CL	TL	LL			FA-TH			SA-TH	Total		FA-PR		SA-PR			SLA	
													Max	Min	Max	Min	Max	Min		Max	Min
312303	Programmi ng in C	PIC	AEC	4	1	4	1	10	5	3	30	70	100	40	50	20	50#	20	25	10	225

indicates External Practical Exam.

Laboratory Learning Outcome (LLO)

- LLO 1.1 Write logical steps for given program flow
- LLO 1.2 Write the standard English like statements for programming flow of given problem statement
- LLO 2.1 Write Simple C program using constant and variables
- LLO 2.2 Use the arithmetic operators for developing C Program
- LLO 3.1 Use Arithmetic operators in C Program
- LLO 4.1 Write code for type casting in C
- LLO 5.1 Write C code for displaying formatted output with comments wherever applicable.
- LLO 6.1 Use Relational and logical operators in C to solve given problem
- LLO 6.2 Write C program using Relational and logical operators for solving given problem
- LLO 7.1 Use logical operators in given expressions
- LLO 8.1 Write expressions using bitwise operators in given problem statement
- LLO 9.1 Write the syntax for various if statements
- LLO 9.2 Write C program for any problem using If statements
- LLO 10.1 Write syntax of if.. else statements
- LLO 11.1 Write syntax of Switch statement to solving given problem
- LLO 12.1 Write C program using Switch statement.
- LLO 13.1 Implement iterative solution to problem using while and do - - while loop
- LLO 14.1 Write the syntax for statement.
- LLO 14.2 Write C code for solving given problem using for loop
- LLO 15.1 Write syntax for while and do ... while loop
- LLO 15.2 Write syntax for 'for' loop
- LLO 16.1 Declare and initialize the Array.
- LLO 16.2 Write C program for implementation of one dimensional array.

LLO 17.1 Declare and initialize two dimensional Array.
 LLO 17.2 Write C program for implementation of two dimensional array.
 LLO 18.1 Declare character array as Strings in C
 LLO 18.2 Write C programs for print string operations without using string handling functions
 LLO 19.1 Declare, define and access structure variables
 LLO 20.1 Write C programs using Array of Structure
 LLO 21.1 Use built-in library functions in C programs
 LLO 22.1 Write C programs using user defined functions
 LLO 23.1 Write Recursive functions in C.
 LLO 24.1 Declare and initialize pointer variables
 LLO 24.2 Write C program to access variables using pointers.
 LLO 25.1 Perform arithmetic operations using pointers.

● **Lab Plan:**

Sr. No.	CO	LLO	Name of Practical	Planned Date	Performance Date	Remarks	Related Self Learning (if any)
1.	CO203.1	1.1 1.2	* Install and study the C programming environment	A-16/12/2025 B-17/12/2025 C-15/12/2025			
2.	CO203.1	3.1	* Implement C programs using arithmetic operators to solve given arithmetic operations	A-20/12/2025 B-18/12/2025 C-19/12/2025			
3.	CO203.1	5.1	* Write well commented C programs using formatted Input/Output statements.	A-23/12/2025 B-24/12/2025 C-22/12/2025			
4.	CO203.1 CO203.2	6.1 6.2	* Implement minimum two C programs using Relational and conditional operator	A-26/12/2025 B-29/12/2025 C-27/12/2025			
5.	CO203.1 CO203.2	7.1	* Implement minimum two C programs using Logical Operators	A-30/12/2025 B-31/12/2025 C-01/01/2026			
6.	CO203.2	9.1 9.2	Implement minimum two C programs using simple If statement and if..else statement.	A-03/01/2026 B-05/01/2026 C-02/01/2026			
7.	CO203.2	10.1	* Implement minimum two C programs using nested If ..else statement and if.. else if ladder	A-06/01/2026 B-07/01/2026 C-08/01/2026			
8.	CO203.2	11.1	* Develop C program using Switch statements	A-10/01/2026 B-12/01/2026 C-09/01/2026			
9.	CO203.2	12.1	* Write a C program to print English Calendar months as per given number(eg: If input is 4 then print "April") using Switch statement	A-13/01/2026 B-14/01/2026 C-15/01/2026			
10.	CO203.2	13.1	* Implement minimum two C programs using 'while' loop and 'do...while' loop statements	A-17/01/2026 B-19/01/2026 C-16/01/2026			
11.	CO203.1 CO203.2	14.1 14.2	Implement C programs using for loop statement (e.g.-Write a C Program to print numbers from 1 to 100)	A-20/01/2026 B-21/01/2026 C-22/01/2026			

12	CO203.2	15.1 15.2	* Print various patterns using loops. e.g. - Write C Program to print following or similar pattern * * * * * * * * * * .	A-24/01/2026 B-02/02/2026 C-23/01/2026			
13	CO203.2 CO203.3	16.1 16.2	* Implement C programs using One Dimensional Array. (e.g.-Write C program to input 5 numbers using array and display sum of it)	A-30/01/2026 B-31/01/2026 C-05/02/2026			
14	CO203.3	17.1 17.2	* Implement C programs using Two Dimensional Array. (e.g.-Write C program to calculate addition of two 3X3 matrices.)	A-04/02/2026 B-09/02/2026 C-03/02/2026			
15	CO203.3	18.1 18.2	* Write C program to perform following operations without using standard string functions. i) Calculate Length of given string ii) Print reverse of given string.	A-06/02/2026 B-07/02/2026 C-12/02/2026			
16	CO203.3	20.1	* Implement ' Array of Structure' in C (e.g.-Accept and Display 10 Employee information using structure)	A-11/02/2026 B-16/02/2026 C-10/02/2026			
17	CO203.4	21.1	* Develop C program using in-built mathematical and string functions.	A-13/02/2026 B-14/02/2026 C-23/02/2026			
18	CO203.4	22.1	* Write C program to demonstrate User defined Functions	A-18/02/2026 B-26/02/2026 C-17/02/2026			
19	CO203.5	24.1 24.2	* Write C Program to print addresses and values of variables using Pointer. (e.g.- Write C program to access and display address of variables.)	A-20/02/2026 B-21/02/2026 C-02/03/2026			
20	CO203.5	25.1	* Implement C Programs to perform arithmetic operations using Pointer.	A-25/02/2026 B-05/03/2026 C-24/02/2026			

● **Formative Assessment Criteria:**

Performance Indicators		Weightage
Process Related (30 Marks)		60%
1	Correctness of Program codes	30%
2	Debugging ability	20%
3	Quality of output achieved(LLO mapped)	10%
Product Related (20 Marks)		40%
1	Completion and submission of practical in time	20%
2	Answer to sample questions	20%
Total (50 Marks)		100%

● **Rules for Formative Assessment:**

1. Formative assessment of each practical is based on Process related (30 marks) and Product related (20 marks) - Total out of 50 marks as per the assessment scheme prescribed by MSBTE,
2. Final Formative Assessment (F.A.) of 50 marks is calculated as follows:

$$FA\ Marks = ((Total\ obtained\ marks)) / (50 * Total\ Number\ of\ practicals)$$

● **Rules for Summative Assessment:**

1. A comprehensive Final Practical End Semester examination (SA-PR of 50 Marks) will be conducted by MSBTE at the end of semester. Examiner for this examination will be External examiner.
2. The schedule of MSBTE Practical Examination will be display on Notice board prior to examination.

● **Practical wise LLO-CO Mapping:**

PR. No.	LLO	CO203.1	CO203.2	CO203.3	CO203.4	CO203.5
Practical 1	1.1 1.2	✓				
Practical 2	3.1	✓				
Practical 3	5.1	✓				
Practical 4	6.1 6.2	✓	✓			
Practical 5	7.1	✓	✓			
Practical 6	9.1 9.2		✓			
Practical 7	10.1		✓			
Practical 8	11.1		✓			
Practical 9	12.1		✓			
Practical 10	13.1		✓			
Practical 11	14.1 14.2		✓			
Practical 12	15.1 15.2		✓			
Practical 13	16.1 16.2		✓	✓		
Practical 14	17.1 17.2			✓		
Practical 15	18.1 18.2			✓		
Practical 16	20.1			✓		
Practical 17	21.1				✓	
Practical 18	22.1				✓	
Practical 19	24.1 24.2					✓
Practical 20	25.1					✓

● **SUGGESTED LEARNING MATERIALS / BOOKS**

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

● LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.javatpoint.com/java-tutorial	All content
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

● Tools for conducting Practicals:

1. YouTube 2. Turbo C 3. Dev-C++

Ms. H.M.Somaiya
Faculty

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

CC: 1. Lab File 2. Course File-PIC 3. Notice Board-AN Lab-04 4. Formative Assessment