

**GOVERNMENT POLYTECHNIC, NAGPUR.**

(An Autonomous Institute of Govt. of Maharashtra)

**COURSE CURRICULUM****PROGRAMME : DIPLOMA IN CE/ME/EE/MT/PK****LEVEL NAME : BASIC TECHNOLOGY COURSES****COURSE CODE : CM 1308****COURSE TITLE : C PROGRAMMING****PREREQUISITE : NIL****TEACHING SCHEME: TH : 02 ; TU : 00 ; PR : 04 ; TOTAL CREDITS: 06 (Hrs/Week)**  
(1 CREDIT = 1 CLOCK HR.)**EVALUATION SCHEME:**

MARKS	THEORY			TUTORIAL/PRACTICAL			TOTAL
	TERM EXAM	PROG TEST	TOTAL	PRACT EXAM	TERM WORK	ORAL EXAM	
MAX.	--	--	--	50@	50@	--	100
MIN.	--	--	--	20	20	--	---

(# - External &amp; Internal Assessment ; @ - Internal Assessment only )

**TIME ALLOTTED FOR TERM EXAM : 03 HRS.****TIME ALLOTTED FOR PROGRESSIVE TEST : NIL**❖ **RATIONALE :**

Computer is a fast changing field both in software as well as hardware. Day by day more advanced software packages are being developed for Programming concepts. C being most commonly used structured programming language having powerful features compared with other existing procedural language, which will certainly help development of logical thinking abilities of the programmer, which will help him to learn any advanced object oriented of 4 GL Languages.

❖ **OBJECTIVES :****After completing this course students will –**

- Understand the features of 'C'
- Develop the logical abilities in students.
- Develop simple applications.
- Develop modular programs.
- Write user defined functions as per requirement
- Make user defined function as if like a library function.

❖ **SKILLS :**

1. Understand the features of 'C'
2. Develop the logical abilities in students.
3. Develop modular programs.
4. Write user defined functions as per requirement

**CONTENTS :****A. THEORY :**

SR. NO.	CHAPTER	MARKS	HOURS
1.	<b>FUNDAMENTALS OF PROGRAMMING LANGUAGE</b>	---	04
	1.1   What is a program ?		

	1.2	History of C		
	1.3	Structure of C Program		
	1.4	Algorithm		
	1.5	Flowchart		
	1.6	Code into a high-level language		
	1.7	Compilation		
	1.8	Corrections		
	1.9	Testing process.		
<b>2.</b>	<b>CONSTANT, VARIABLE, DATA TYPE AND EXPRESSION.</b>			
	2.1	Character set		
	2.2	Constant		
	2.3	Variable		
	2.4	Data Types	---	<b>04</b>
	2.5	Operation		
	2.6	Expressions		
	2.7	Precedence and Associativity		
	2.8	Evaluation of expressions		
	2.9	Simple Programming		
<b>3.</b>	<b>BASIC INPUT-OUTPUT</b>			
	3.1	Conversion specification		
	3.2	Reading Input Data		
	3.3	Writing Output Data		
	3.4	Single Character input-output	---	<b>02</b>
	3.5	String input-output		
	3.6	General input		
	3.7	General output		
	3.8	scanf(), printf(), getc(), putc(), getw(), putw(), getchar(), putchar()		
	3.9	Programs based on Basic Input Output		
<b>4.</b>	<b>DECISION MAKING AND BRANCHING</b>			
	4.1	IF Statement		
	4.2	IF.. ELSE		
	4.3	Nesting of IF..ELSE	---	<b>04</b>
	4.4	The IF ELSE Ladder		
	4.5	The GOTO statement		
	4.6	The Switch statement		
	4.7	Programs based on Decision Making and Branching		
<b>5.</b>	<b>DECISION MAKING AND LOOPING</b>			
	5.1	The WHILE Loop		
	5.2	The DO WHILE Loop		
	5.3	The FOR Loop	---	<b>03</b>
	5.4	The break Statement		
	5.5	The continue Statement		
	5.6	The exit() Function		
	5.7	Programs based on Decision Making and Looping		
<b>6.</b>	<b>ARRAYS AND STRINGS</b>			
	6.1	What are Arrays		
	6.2	Declaration of Array	---	<b>04</b>
	6.3	Processing with Array		
	6.4	Initialization of Array		

	6.5	Linear Search		
	6.6	Binary Search		
	6.7	What are Strings		
	6.8	String Library functions		
	6.9	Programs based on Arrays and Strings		
<b>7.</b>	<b>FUNCTIONS</b>			
	7.1	What is a Function		
	7.2	Why use Functions		
	7.3	Passing values between Functions		
	7.4	Scope Rule of Functions	---	<b>04</b>
	7.5	Library Functions / User Defined Functions		
	7.6	Call by value and call by Reference		
	7.7	Recursion		
	7.8	Programs based on Functions		
<b>8.</b>	<b>POINTERS</b>			
	8.1	Basic Concepts		
	8.2	Pointer expression, variable		
	8.3	Pointers & Array	---	<b>04</b>
	8.4	Pointers & Character String		
	8.5	Pointers & Functions		
	8.6	Pointer Arithmetic		
<b>9.</b>	<b>STRUCTURES &amp; UNIONS</b>			
	9.1	Basic concepts & manipulation	---	<b>03</b>
	9.2	Union		
	9.3	Difference between Structure & Union		
<b>Total</b>			---	<b>32</b>

**B. LIST OF PRACTICALS/LABORATORY EXPERIENCES/ASSIGNMENTS:**

S.No.	Title of Practical/Lab.Work/Assignments	Hrs.
1.	Problems involving sequence, selection and iteration for flow charting and pseudo code representations.	02
2.	Small problems mainly computational to illustrate expressions, operator precedence and basic Input –output.	02
3.	Iterative algorithms such as: god, sum of the series, finding root of a function, separating an integer into prime factors, finding root of a function, separating an integer into prime factors, finding the frequency and mode of an ascending sequence of numbers etc.	02
4.	Two programs based on If-THEN statement	02
5.	Two programs based on If-THEN- ELSE statement	04
6.	Two programs based on NESTED If statement	04
7.	Two programs based on Switch statement	04
8.	Two programs based on FOR loop	04
9.	Two programs based on WHILE loop	04
10.	Two programs based on DO-WHILE loop	04
11.	Two programs based on Arrays	04
12.	Two programs based on Multidimensional Arrays	04
13.	Two programs based on strings.	04
14.	Two programs based on searching techniques.	04
15.	Two programs based on sorting techniques.	04
16.	Two programs based on Functions	04

17.	Two programs based on Recursive Functions	04
18.	Two programs based on Functions (Call-by-Value/Call-by-reference)	04
Total		64

❖ **ASSESSMENT OF LABORATORY EXPERIENCES/ASSIGNMENTS :**

Continuous assessment of Term Work and Term End Practical examination.

❖ **SUGGESTED IMPLEMENTATION STRATEGIES :**

1. Lecture method
2. Improved lecture method.
3. Q & A technique.
4. Demonstration
5. Case study
6. Seminars

❖ **SUGGESTED LEARNING RESOURCES :**

1. **PRINT :** Text books/Reference books/Manuals/Journals.
2. **NON PRINT :** CDs / PPT / Transperencies / Charts / Models

**C. SPECIFICATION TABLE :**

Chapter No.	Title of Chapter	Marks (1.5 x Marks allotted to chapter)	Distribution of Marks			
			Knowledge	Comprehension	Application	Total
<b>Total</b>			<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

**D. REFERENCE & TEXT BOOKS:**

S.N.	Title	Author, Publisher, Edition and Year Of publication	ISBN Number
1.	The C Programming Language	Kernighan and Ritchie	0131103628
2.	Programming in ANSI 'C'	E. M. Balguruswami	978-0070648227
3.	Let Us C	Yashavant Kanetkar	978-1934015254
4.	Programming in C	Venugopal	0074634437
5.	C Projects	Yashavant Kanetkar	978-8170292562
6.	Exploring C	Yashavant Kanetkar	978-8176566339
7.	Understanding Pointers in C	Yashavant Kanetkar	978-8176565370
8.	Programming and Problem Solving Through 'C' Language	Macmillan publication	978-1403910332

**E. LIST OF EXPERTS & TEACHERS WHO CONTRIBUTED FOR THIS CURRICULUM:**

S.N.	Name	Designation	Institute / Industry
1.	Prof. V. A. Khandekar	Lecturer	Govt. Polytechnic Nagpur
2.	Prof. R. L. Meshram	Lecturer	Govt. Polytechnic Nagpur
3.	Prof. D. Nemanwar	Lecturer	Govt. Polytechnic nagpur

Date:.....

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(Member Secretary PBOS)

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(Chairman PBOS)

