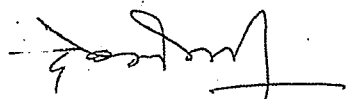
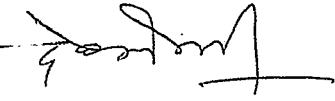


Part A : Introduction			
Program: DIPLOMA		Class : UG	Year: II year session :2022-2023
Subject : Computer Application			
1.	Course Code	S2-COAP1G	
2.	Course Title	Basic Programming in 'C'	
3.	Course Type	Generic Elective	
4.	Pre-requisite	This course is based on programming so the students must have the basic knowledge of computers and its basic operations.	
5.	Course Learning Outcomes (CLO)	<p>On the completion of this course student will be able -</p> <ul style="list-style-type: none"> <li>• To explore basics of C programming languages.</li> <li>• To approach the programming tasks using techniques learned and write pseudo-code.</li> <li>• To choose the right data representation formats based on the requirements of the problem.</li> <li>• To use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.</li> <li>• To identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.</li> </ul>	
6.	Credit Value	4	
7.	Total Marks	Max. Marks: 30+70	Min. Passing Marks: 33
Part B: Content Of the Course			
Programming in C language			
Total No. of Lectures =60 (3 hours/lecture per week) : 3-0-0			
Unit	Topics	No. of Lectures	
I	<p>Programming Fundamentals : Program Concept, C language: introduction, history of C, Over view of procedural programming and object oriented programming, structure of C program, Algorithms, Flow Charts - Symbols, Rules for making Flow chart, Types of flowchart, techniques of problem solving : Programming Techniques – Top down, Bottom up, Modular, Structured - Features, Merits &amp; Demerits, Programming Logics- Simple Branching, Looping, Recursion, Cohesion &amp; Coupling, Programming. Testing &amp; Debugging &amp; their Tools.</p> <p>How to compile and run a C program- steps and detailed procedure.</p>	12	

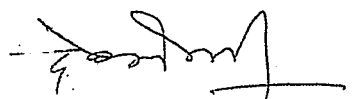
  
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<b>II</b>	Programming in C including features of 'C', C tokens, Variables, Expressions, Identifiers, Keywords, Data Types, Constants, Operator: Arithmetic, Logical, Relational, Conditional and Bit wise Operators, Precedence and Associativity of Operators, evaluations of expressions, Type conversions in expressions, Basic input/output and library functions: Single character input/output i.e. getch(), getchar(), getche(), puts(), putchar() and putchar(), Formatted input output i.e. printf() and scanf().	<b>12</b>
<b>III</b>	Decision Making branching: if-else, switch, conditional operator & goto statements If statement, If....Else statement, Nesting of If....Else Statement, else if ladder, ?: operator, goto statement, Switch statement, Compound statement, Looping : Introduction, while statement, do statement, for statement, Break and Continue, do-while loops.	<b>12</b>
<b>IV</b>	Functions: Utility of functions, Call by value & call by reference, categories of functions (i) Introduction (ii) User defined function and library functions, Categories of User defined functions , Return values and their types, Calling a function, Void functions, Differentiating between declaration and definition of function argument/parameters in functions, Functions with variable number of arguments, recursion, Function arguments, Return values and nesting of function, Recursion, Calling of functions, Scope and life of variables - local and global variable, Storage class - auto, extern, static, register.	<b>12</b>
<b>V</b>	Arrays : what is array, declaring initializing , accessing individual elements in an array, manipulating array elements using loops, 2D and 3D arrays. String: declaration, string functions – strcat, strcpy, strcmp, strlen, strstr. Pointers : Overview of Pointers. Preprocessor, #define, defining functions like macros, #error, #include, conditional compilation directives i.e. #if, #else, #elif and #ifdef & undef  Structures : Structure definition, declaring and initializing Structure variables, the structure tag, period operator , accessing Structure members, Copying & Comparison of structures, the concept of structure of structure , array of structure; arrow operator and nesting of structure, Unions : initialization and use of it in a program.  File Management: Introduction.	<b>12</b>

  
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Part C: Learning Resources	
<p><b>Suggested Digital Platforms, Web links</b></p> <ol style="list-style-type: none"> <li>1. <a href="https://www.programiz.com/c-programming/c-if-else-statement">https://www.programiz.com/c-programming/c-if-else-statement</a></li> <li>2. <a href="https://javatutoring.com/control-statements-in-c/">https://javatutoring.com/control-statements-in-c/</a></li> <li>3. <a href="https://www.programiz.com/c-programming/c-arrays">https://www.programiz.com/c-programming/c-arrays</a></li> <li>4. <a href="https://www.tutorialspoint.com/cprogramming/c_structures.htm">https://www.tutorialspoint.com/cprogramming/c_structures.htm</a></li> <li>5. <a href="https://beginnersbook.com/2014/01/c-functions-examples/">https://beginnersbook.com/2014/01/c-functions-examples/</a></li> <li>6. <a href="https://www.javatpoint.com/data-types-in-c">https://www.javatpoint.com/data-types-in-c</a></li> <li>7. <a href="http://www.mphindigranthacademy.org/">http://www.mphindigranthacademy.org/</a></li> </ol> <p><b>Suggested Readings:</b></p> <ol style="list-style-type: none"> <li>1. The C Programming Language : B.W. Kernighan &amp; D.M. Ritchie</li> <li>2. The Sprit of C : Cooper, Mullish</li> <li>3. Programming in ANSI-C : E. Balagurusami, TMH Publication</li> <li>4. Programming in C : Schaum Outline, McGraw-Hill</li> <li>5. Let us C : Kanetkar Y</li> <li>6. An introduction to C programming – Amit Saxena, Anamaya Publishers, New Delhi</li> <li>7. Books published by M.P. Hindi Granth Academy, Bhopal</li> </ol>	

Part D-Assessment and Evaluation		
<p><b>Suggested Continuous Evaluation Methods:</b>  Maximum Marks : 100  Continuous Comprehensive Evaluation (CCE) : 30 marks University Exam (UE) : 70marks</p>		
<b>Internal Assessment :</b> Continuous Comprehensive Evaluation (CCE):30	Class Test Assignment/Presentation	Total 30
<b>External Assessment :</b> University Exam Section: 70 Time : 03.00 Hours	<b>Section(A) : Objective Questions</b> <b>Section (B) : Short Questions</b> <b>Section (C) : Long Questions</b>	Total 70

  
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**Part- A**  
**Introduction**

<b>Program: DIPLOMA</b>	<b>Class : UG II</b>	<b>Year: 2022</b>	<b>session:2022-2023</b>
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**Subject : Computer Application**

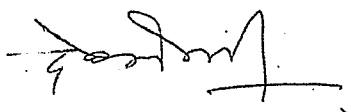
1.	Course Code	S2-COAP1R
2.	Course Title	Basic Programming in 'C' (Practical)
3.	Course Type	General Elective
4.	Pre-requisite(If any)	
5.	Course Learning Outcomes (CLO)	<p>On the completion of this course student will be able -</p> <ul style="list-style-type: none"> <li>To understand how computer works and will be able to understand and visualize the inner working of computer.</li> <li>To understand the syntax and semantics of the C language.</li> <li>To recognize how to develop and implement a program in the C language.</li> <li>To recollect various programming constructs and to develop C programs.</li> <li>To acquire logical thinking, Implement the algorithms and analyze their complexity.</li> </ul>
6.	Credit Value	2
7.	Total Marks	Max. Marks: 30+70      Min. Passing Marks: 33

**Part- B Content Of the Course**  
**Basic Programming in 'C' (Practical)**

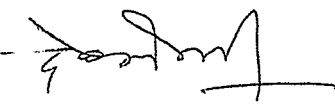
**Total No. of Labs = 30 labs each of 2 hours duration (1 lab per week)**

**Practical Lab will be conducted based on the theory Syllabus**

	<p><b>List of Practical</b></p> <ol style="list-style-type: none"> <li>1. Write a Program to print different data types in 'C' and their ranges.</li> <li>2. Write a Algorithm &amp; Flowchart to convert temperature from Celsius to Fahrenheit.</li> <li>3. Write an algorithm &amp; flowchart to find the smallest and largest number of among the three numbers.</li> <li>4. Write a program to calculate simple and compound interest.</li> <li>5. Write a C program to find the roots of a quadratic equation.</li> <li>6. Write a C program to <u>make a simple calculator using switch...case.</u></li> </ol>	
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	<p>7. Write a C program to print natural numbers from 1 to n.</p> <p>8. Write a C program to find the factorial of a given number.</p> <p>9. Write a program in C to check a given number is even or odd using the function.</p> <p>10. Write a C program to <u>access elements of an array using pointers.</u></p> <p>11. Write a C program to <u>calculate the average of array elements.</u></p> <p>12. Write a C program to <u>store information of 10 students using structures.</u></p> <p>13. <u>Add two complex numbers by passing structures to a function.</u></p> <p>14. Write a C program to <u>find the length of a string.</u></p> <p>15. Write a C program to <u>reverse a string using recursion.</u></p> <p>16. Write a C Program to <u>find largest element in an array.</u></p> <p>17. Write a C program to <u>add two matrices using multi-dimensional arrays.</u></p> <p>18. Write a C program to <u>store information of students using structure.</u></p> <p>19. Write a C program <u>to Print Pyramid.</u></p> <p>20. Write a C program <u>to Print Patterns.</u></p>	
	<b>Part -C</b> <b>Learning Resources</b>	
	<p><b>Suggested Digital Platforms, Web links</b></p> <ol style="list-style-type: none"> <li>1. <a href="https://javatutoring.com/control-statements-in-c/">https://javatutoring.com/control-statements-in-c/</a></li> <li>2. <a href="https://www.programiz.com/c-programming/c-arrays">https://www.programiz.com/c-programming/c-arrays</a></li> <li>3. <a href="https://www.tutorialspoint.com/cprogramming/c_structures.htm">https://www.tutorialspoint.com/cprogramming/c_structures.htm</a></li> <li>4. <a href="https://beginnersbook.com/2014/01/c-functions-examples/">https://beginnersbook.com/2014/01/c-functions-examples/</a></li> <li>5. <a href="https://www.javatpoint.com/data-types-in-c">https://www.javatpoint.com/data-types-in-c</a></li> <li>6. <a href="http://www.mphindigranthacademy.org/">http://www.mphindigranthacademy.org/</a></li> </ol>	

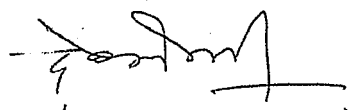
  
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	<b>Suggested Readings:</b> <ol style="list-style-type: none"> <li>1. The Sprit of C : Cooper, Mullish</li> <li>2. Programming in ANSI-C : E. Balagurusami, TMH Publication</li> <li>3. Programming in C : Schaum Outline, McGraw-Hill</li> <li>4. Let us C : Kanetkar Y</li> <li>5. An introduction to C programming – Amit Saxena, Anamaya Publishers, New Delhi</li> <li>6. Books published by M.P. Hindi Granth Academy, Bhopal</li> </ol>	
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### Part D-Assessment and Evaluation

#### Suggested Continuous Evaluation Methods:

Internal Assessment	Marks	External Assessment	Marks
Class Interaction /Quiz		Viva Voce on Practical	
Attendance		Practical Record File	
Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
<b>TOTAL</b>	<b>30</b>		<b>70</b>

  
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