Part A : Introduction				
Program: CERTIFICATE		**Class : UG**	**Year: I year**	**session :2021-2022**
Subject : Computer Application				
1.	**Course Code**	**S1-COAP1T**		
2.	**Course Title**	**Programming in C language**		
3.	**Course Type**	**Core course**		
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)**	On the completion of this course student will be able - • To explore basics of C programming languages. • To approach the programming tasks using techniques learned and write pseudo-code. • To choose the right data representation formats based on the requirements of the problem. • To use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand. • 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.		
6.	**Credit Value**	**4**		
7.	**Total Marks**	**Max. Marks: 25+75**	**Min. Passing Marks: 33**	

Part B: Content Of the Course
Programming in C language

Total No. of Lectures =60 (2 hours/lecture per week) : 2-0-0

Unit	Topics	No. of Lectures
I	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 & Demerits, Programming Logics- Simple Branching, Looping, Recursion, Cohesion & Coupling, Programming. Testing & Debugging & their Tools.	12
II	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 Associatively 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(), putch() and putchar(), Formatted input output i.e. printf() and scanf(). Decision Making branching: if-else, switch, conditional operator	12

(DR D N GOSWAMI)

	&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.	
III	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. 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.	**12**
IV	Pointers: operations on pointers, Basic of pointers and operators, Accessing the address of variable, Declaring and initializing pointers, Accessing a variable through its pointer, Pointer expressions, Pointers and function, Array of pointers, Pointer and strings, Pointer to structure, Pointers within structure , 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, structure and pointer, arrow operator and nesting of structure, Unions : initialization and use of it in a program.	**12**
V	File Management: Introduction – File handling, File structure, File handling function,File types, Streams, Text, Binary, File system basics, The file pointer, Opening a file, Closing a file, Writing a character, Reading a character, Using fopen(), getc(), putc(), and fclose(), Using feof(), Working with string fputs() and fgets(), Standard streams in C, Flushing a stream Using fread() and fwrite(), Direct access file, fseek() and random access I/O, fprintf() and fscanf(), Command line arguments	**12**

(DR D N GOSWAMI)

	Part C: Learning Resources	
	Suggested Digital Platforms, Web links 1. https://beginnersbook.com/2014/01/c-pointers/ 2. https://www.programiz.com/c-programming/c-if-else-statement 3. https://javatutoring.com/control-statements-in-c/ 4. https://www.programiz.com/c-programming/c-arrays 5. https://www.tutorialspoint.com/cprogramming/c_structures.htm 6. https://beginnersbook.com/2014/01/c-functions-examples/ 7. https://www.javatpoint.com/data-types-in-c **Suggested Readings:** 1. The C Programming Language : B.W. Kernighan & D.M. Ritchie 2. The Sprit of C : Cooper, Mullish 3. Programming in ANSI-C : E. Balagurusami, TMH Publication 4. Programming in C : Schaum Outline, McGraw-Hill 5. Let us C : Kanetkar Y 6. Pointers in C : Kanetkar Y 7. An introduction to C programming – Amit Saxena, Anamaya Publishers, New Delhi	

Part D: Assessment and Evaluation(Theory)		
Maximum Marks :	**100**	
Continued Comprehensive Evaluation (CCE):	**25**	
University Exam(UE):	**75**	
Time:02:00 Hours		
Internal Assessment : Continued Comprehensive Evaluation (CCE):	**Class Test**	**15**
	Assignment/Presentation	**10**
	Total	**25**
External Assessment: University Exam	**Section(A): Three Very Short Questions(50 words each)**	**03 X 03 =09**
	Section(B): Four Short Questions(200 words each)	**04 X 09=36**
	Section(C): Two long Questions(500 words each)	**02 X 15=30**
	Total	**75**

(DR D N GOSWAMI)

Part- A
Introduction

Program: certificate		**Class : UG I**	**Year: 2021**	**session:2021-2022**
Subject : Computer Application				
1.	**Course Code**	**S1-COAP1P**		
2.	**Course Title**	**Programming in C language (Practical)**		
3.	**Course Type**	**core**		
4.	**Pre-requisite(If any)**			
5.	**Course Learning Outcomes (CLO)**	On the completion of this course student will be able - • To understand how computer works and will be able to understand and visualize the inner working of computer. • To understand the syntax and semantics of the C language. • To recognize how to develop and implement a program in the C language. • To recollect various programming constructs and to develop C programs. • To acquire logical thinking, Implement the algorithms and analyze their complexity.		
6.	**Credit Value**	**2**		
7.	**Total Marks**	**Max. Marks: 25+75**	**Min. Passing Marks: 33**	

Part- B Content Of the Course
Programming in C language (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

List of Practical

1. Write a Program to print different data types in 'C' and their ranges.
2. Write an Algorithm & Flowchart to convert temperature from Celsius to Fahrenheit.
3. Write an algorithm & flowchart to find the smallest and largest number of among the three numbers.
4. Write a program to calculate simple and compound interest.
5. Write a C program to find the roots of a quadratic equation.
6. Write a C program to make a simple calculator using switch...case.
7. Write a C program to print natural numbers from 1 to n.
8. Write a C program to find the factorial of a given number.
9. Write a program in C to check a given number is even or odd using the function.

30 HRS

(DR D.N.GOSWAMI)

	10. Write a C program to access elements of an array using pointers. 11. Write a C program to calculate the average of array elements. 12. Write a C program to store information of 10 students using structures. 13. Add two complex numbers by passing structures to a function. 14. Write a C program to find the length of a string. 15. Write a C program to reverse a string using recursion. 16. Write a C Program to find largest element in an array. 17. Write a C program to add two matrices using multi-dimensional arrays. 18. Write a C program to store information of students using structure. 19. Write a C program to swap two numbers using pointers. 20. Write a C program to Print Pyramids and Patterns. 21. Write a C program to read and write to a text file.	

(DR D N GOSWAMI)

Part -C
Learning Resources

Suggested Digital Platforms, Web links

1. https://beginnersbook.com/2014/01/c-pointers/
2. https://www.programiz.com/c-programming/c-if-else-statement
3. https://javatutoring.com/control-statements-in-c/
4. https://www.programiz.com/c-programming/c-arrays
5. https://www.tutorialspoint.com/cprogramming/c_structures.htm
6. https://beginnersbook.com/2014/01/c-functions-examples/
7. https://www.javatpoint.com/data-types-in-c

Suggested Readings:

1. The C Programming Language : B.W. Kernighan & D.M. Ritchie
2. The Sprit of C : Cooper, Mullish
3. Programming in ANSI-C : E. Balagurusami, TMH Publication
4. Programming in C : Schaum Outline, McGraw-Hill
5. Let us C : Kanetkar Y
6. Pointers in C : Kanetkar Y
7. An introduction to C programming – Amit Saxena, Anamaya Publishers, New Delhi

Part D: Assessment and Evaluation(Practical)

Maximum Marks : 100
Continued Comprehensive Evaluation (CCE): 25
University Exam(UE): 75

Internal Assessment	Marks	External Assessment	Marks
Class Interaction	10	Viva vOce on Practical	15
Attendance	5	Practical Record File	10
Assignments(Charts/Seminar/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial visit	10	Table Work/ Experiments	50
TOTAL	25		75

(DR D N GOSWAMI)

Part A : Introduction				
Program: CERTIFICATE		**Class : UG**	**Year: I year**	**session :2021-2022**
Subject : Computer Application				
1.	**Course Code**	**S1-COAP2T**		
2.	**Course Title**	**Data processing Software**		
3.	**Course Type**	**Core course**		
4.	**Pre-requisite**	At least Intermediate in Any course / stream		
5.	**Course Learning Outcomes (CLO)**	On the completion of this course student will be able - • **To understand the basic concept of various Applications of software.** • **To gain knowledge of MS Word , Excel , Access and Power point.** • **To apply acquired knowledge in office automation tasks.** • **To study various methods of formatting of documentation and use of spreadsheets.** • **To develop and enhance presentation skills using power point.**		
6.	**Credit Value**	**4**		
7.	**Total Marks**	**Max. Marks: 25+75**	**Min. Passing Marks: 33**	

Part B: Contents of the Course
Data processing Software

Total No. of Lectures =60 (2 hours/ lecture per week) :2-0-0

Unit	Topics	No. of Lectures
I	**MS Windows:** Introduction to MS Windows; Features of Windows; Various versions of Windows & their use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; Shortcuts & Autostarts; Accessories and Windows Settings using Control Panel; Start button & Program lists; Installing new Hardwares & Softwares.	**12**
II	**Basics Of MS Word:** Creating Word documents; The Word Window , Entering Texts . Editing Document texts; Selecting Texts, Copying and Moving Texts. Applying Text Enhancements; Applying Fonts and Font Styles in Word, Highlighting Text For Distinctive Look . Aligning and Formatting; Aligning Text using identification options, Setting Line Spacing Options using Tabs. Creating Lists, Numbers and Symbols ; Numbering and Bullets, Creating Special Characters. Replacing and checking Text ; Creating and Applying Frequently used Texts, Finding and Replacing Texts , More about Spelling and Grammar using the Thesaurus Command, Getting Print using Print Preview, Changing Page Orientation and Paper Size, Aligning Text Vertically, Setting Margins, Printing Options. Advanced Formatting Techniques in Word : Formatting Pages; Formatting Sections, Creating and Modifying Page Numbers, Creating Headers and Footers , Taking Care of Loose Ends, Working With Columns ; Working With Newspaper	**12**

(DR D N GOSWAMI)

	Columns, Revising Column Structure. Constructing High-Quality Tables ; Creating and Revising Tables , Modifying Table Structure , Formatting Table, Creating Outlines in Word using Templates, Use of Mail Merge in Microsoft Word	
III	**MSAccess** Concepts & terms : database tables ,relational database , records , fields , controls & objects , queries, forms, reports ,properties , wizards , macros , MSAccess requirements , starting & quitting MSAccess , MSAccess workspace, tool & views . Creating database & tables with & without wizard , field name , data types & properties , adding & deleting fields, renaming fields & their caption , resizing fields , freezing columns , primary key field & indexing fields. MSAccess Form: Form wizard , Saving & Modifying forms , Entering & Editing data , Finding , sorting & displaying data , creating queries , using select queries and wild cards. MS Reports : Creating reports, Previewing reports, Printing reports, modifying & Saving reports. Relational databases: definition, purpose, creation, viewing, deleting. Expressions , Create PivotTable or PivotChart views in an Access desktop database.	**12**
IV	**Creating Excel Worksheets :** Entering and Editing Cell Entries : Excel Application Window , Workbooks and Worksheets, Moving the Cell Pointer, Entering Text and Numbers , Revising Text and Numbers. Working with Numbers ; Creating Formulae, Formatting numbers. Changing Worksheet Layout ; Adjusting Column Width and Row Height, Inserting and Deleting Rows and Columns, Inserting and Deleting Cells , Moving and Copying Cell Contents , Naming Worksheets , Selecting Worksheets , Copying and Moving Worksheets, Inserting and Deleting Worksheets, Other Formatting Options ; Aligning Text , Border and Color. Printing in Excel ; Print Preview, Changing Page Setup , Checking Worksheet Spelling. **Advanced Techniques in Excel** Using Functions and References : Use of Functions , Entering Functions, Relative and Absolute Cell References. Create Named Ranges, Creating Easy-to-Understand Charts ; Pie Charts , Series Charts , Creating Charts , Moving , Sizing and Printing Chart Objects . Editing and Formatting Charts ; Adding a Data Series , Deleting a Data Series , Modifying and Formatting Charts. Macros. Creation of PivotTable to analyze worksheet data.	**12**

(DR D N GOSWAMI)

V	**Creating PowerPoint Presentations:** Creating a Basic Presentation , Building Presentations, Modifying Visual Elements , Formatting and Checking Text, Adding Objects, Applying Transitions, Animation Effects and Linking , Preparing handouts.	**12**
	Part C: Learning Resources	
	Suggested Digital Platforms, Web links 1. https://www.webucator.com/how-to/how-use-mail-merge-microsoft-word.cfm 2. https://support.microsoft.com/en-us/office/create-pivottable-or-pivotchart-views-in-an-access-desktop-database-83e524df-dfbd-456d-9dd0-0a48c1aa6752 3. https://support.microsoft.com/en-us/office/create-a-pivottable-to-analyze-worksheet-data-a9a84538-bfe9-40a9-a8e9-f99134456576 4. https://www.youtube.com/watch?v=Zv3XMBb3V6A 5. http://www.digimat.in/nptel/courses/video/121106007/L12.html **Suggested Readings:** 1. Microsoft Office 97 : Will Train , Gini Courter, Annette Marquis ,BPB Publication. 2. Microsoft Office 2000 : Gini Courter & Annette Marquis, BPB Publication. 3. MS Office 2000 for Everyone : Saxena Sanjay , s schnd 4. Writer's Guide to Microsoft Word : Kari Holloway 5. Access 2016 Bible : Michael Alexander, Richard Kusleika 6. Excel 2019 : Greg Harvey 7. Microsoft Powerpoint Made Easy : Chris Smith	

Part D: Assessment and Evaluation(Theory)		
Maximum Marks :	**100**	
Continued Comprehensive Evaluation (CCE):	**25**	
University Exam(UE):	**75**	
Time:02:00 Hours		
Internal Assessment : Continued Comprehensive Evaluation (CCE):	**Class Test**	**15**
	Assignment/Presentation	**10**
	Total	**25**
External Assessment: University Exam	**Section(A): Three Very Short Questions(50 words each)**	**03 X 03 =09**
	Section(B): Four Short Questions(200 words each)	**04 X 09=36**
	Section(C): Two long Questions(500 words each)	**02 X 15=30**
	Total	**75**

(DR D N GOSWAMI)

Part- A
Introduction

Program: certificate		Class : UG I	Year: 2021	session:2021-2022
Subject : Computer Application				
1.	Course Code	S1-COAP2P		
2.	Course Title	Data Processing Software (Practical)		
3.	Course Type	core		
4.	Pre-requisite(If any)			
5.	Course Learning Outcomes (CLO)	On the completion of this course student will be able - • To understand the basic concepts of various Applications of Softwares. • To gain knowledge of MS Word , Excel , Access and Power point. • To apply acquired knowledge in office automation tasks. • To study various methods of formatting of documentation and use of spreadsheets. • To develop and enhance presentation skills using power point		
6.	Credit Value	2		
7.	Total Marks	Max. Marks: 25+75	Min. Passing Marks: 33	

Part- B
Content Of the Course
Data Processing Software (Practical)

Practical Lab will be conducted based on the theory Syllabus

M S Office Practical

1. To create a document and insert header and footer, page title, page numbers
2. Insert a table, picture, clip art and chart into the document.
3. To create a document for writing mathematical equations.
4. To create a document, set the margins, orientation, size, column, water mark, page color and page borders.
5. To create a document using mail merge by connecting data base.
6. To Print an invitation letter using mail merge.

30 HRS

(DR D N GOSWAMI)

	7.	To design a table, form and report in Access.	
	8.	To design Queries and macro in Access.	
	9.	To get external data from elsewhere and move to Access.	
	10.	Access Data base, generate report and label.	
	11.	To encrypt Data base with pass word in Access.	
	12.	Creating, editing, saving , printing, securing & protecting operations of an excel spreadsheets.	
	13.	To Prepare different types of charts in Excel	
	14.	To create student's data for identity card along with photo , sign etc. and print it.	
	15.	To create bar chart & pie chart in Excel for analysis of five year's results of your institute.	
	16.	To prepare an attendance sheet of 10 students for any 6 subjects of your syllabi. To calculate their total attendance, total percentage of attendance of each student & average of attendance.	
	17.	To create Pivot Table using multiple sources of data in Excel.	
	18.	Applying themes and layouts to power point slides and inserting pictures, graphics, shapes and tables into presentations.	
	19.	To create power point slide make using transitions and animation, working with master slides.	
	20.	To create a professional slide for presentation in Power point.	

(DR D N GOSWAMI)

	Part -C Learning Resources	
	Suggested Digital Platforms, Web links 1. https://www.webucator.com/how-to/how-use-mail-merge-microsoft-word.cfm 2. https://support.microsoft.com/en-us/office/create-pivottable-or-pivotchart-views-in-an-access-desktop-database-83e524df-dfbd-456d-9dd0-0a48c1aa6752 3. https://support.microsoft.com/en-us/office/create-a-pivottable-to-analyze-worksheet-data-a9a84538-bfe9-40a9-a8e9-f99134456576 4. https://www.youtube.com/watch?v=Zv3XMBb3V6A 5. http://www.digimat.in/nptel/courses/video/121106007/L12.html **Suggested Readings:** 1. Microsoft Office 97 : Will Train , Gini Courter, Annette Marquis ,BPB Publication. 2. Microsoft Office 2000 : Gini Courter & Annette Marquis, BPB Publication. 3. MS Office 2000 for Everyone : Saxena Sanjay , s schnd 4. Writer's Guide to Microsoft Word : Kari Holloway 5. Access 2016 Bible : Michael Alexander, Richard Kusleika 6. Excel 2019 : Greg Harvey 7. Microsoft Powerpoint Made Easy : Chris Smith	

Part D: Assessment and Evaluation(Practical)

Maximum Marks :	**100**
Continued Comprehensive Evaluation (CCE):	**25**
University Exam(UE):	**75**

Internal Assessment	Marks	External Assessment	Marks
Class Interaction	10	Viva vOce on Practical	15
Attendance	5	Practical Record File	10
Assignments(Charts/Seminar/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey/ Industrial visit	10	Table Work/ Experiments	50
TOTAL	25		75

(DR D N GOSWAMI)