SANATAN DHARMA COLLEGE, AMBALA CANTT

College with Potential for Excellence, UGC,New Delhi
NAAC Accredited Grade "A+" with CGPA 3.51 in 3rd cycle
ISO 9001:2015 & ISO 14001:2015 Certified

Department of Computer Science

Lesson Plan (Session 2021-2022)

Class: BVOC (SD) Sem: I Course Code: BVSD-14 Nomenclature: Programming Fundamentals and C

Duration: 16 Weeks **Date: Oct-Jan 2022**

SYLLABUS

BVSD -14 Programming Fundamentals and C

Maximum Marks: 100 **External: 80** **Minimum Pass Marks: 40**
Internal: 20 **Time: 3 hours**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that, eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Algorithm, Flowchart, Types of Flowcharts, Rules for drawing Flowcharts, Pseudo Codes. Decision Tables, Characteristics of Good Algorithm, Documentation, Debugging.

Computer Languages, Analogy with Natural Languages, History of Programming Languages, Machine Language, Assembly Language, High Level Language, Programming Language, Translator, Compiler and Interpreter.

Unit II

Overview of C: History & Importance of C, Structure of a C Program.

Elements of C: C Character Set, Identifiers and Keywords, Data Types, Constants and Variables, Assignment Statement, Symbolic Constant.

Operators & Expression: Arithmetic Operator, Relational Operator, Logical Operator, Bitwise Operator, Unary Operator, Assignment Operator, Conditional operators and special operators. Arithmetic expressions, Evaluation of Arithmetic Expression, Type Casting and Conversion, Operator Hierarchy & Associativity.

Decision Making & Branching: Decision Making with IF Statement, IF-ELSE Statement, Nested IF Statement, ELSE-IF Ladder, Switch Statement, go to Statement.

Decision Making & Looping: for, while, and do-while loop, Jumps in loops, break, continue Statement.

Unit III

Functions: Definition, Prototype, Passing Parameters, Recursion. Arrays: Definition, Initialization, Processing an Array. Storage Classes in C: Auto, Extern, Register and Static Storage Class, Their Scope, Storage & Lifetime.

Unit IV

Pointers: Introduction, Pointer Variables, Pointer Operators, Pointer Assignment, Pointer Conversion, Pointer Arithmetic, Pointer Comparison, Pointers and Arrays, Pointers and Functions. Structure and Union.

TEXT BOOKS:

- Sinha P.K., Computer Fundamentals, BPB Publication, 2004
- Balagurusamy E., Programming in C, TMH Publication

REFERENCE BOOKS:

- Tucker Allen, Programming Languages – Principles & Paradigms, TMH, 2002
- Kanetker Yashavant, Let Us C, BPB, 2010

Course Outcomes

After the completion of this course, prospective Computer professionals will have the ability to

Course Title	Programming Fundamentals and C
CO No.	**Course Outcomes**
CO-1	**Know the correct and efficient ways of solvingproblems.**
CO-2	**Write C program for simple applications**
CO-3	**Formulate algorithm for simple problems**
CO-4	**Analyze different data types and arrays**
CO-5	**Perform simple search and sort**
CO-6	**Understand memory management and write programs using structures for solvingcomplex computational problem**
CO-7	**Create files and perform file operations using C**
CO-8	**Apply the programming language concepts to solvereal time problems**

S.No	Instructional Technique	Assessment Methods (AM)
1	Chalk & Talk	**Assignments**
2	ICT tools	**Quiz**
3	Group discussions	**Group Discussions**
4	Industrial visit	**Oral Tests**
5	Case studies	**Sessional**
6	Small Projects	**Presentations**
7	Workshop	**Seminar**
8	Spoken Tutorials	**University Exams**
9	Flipped Class	
10.	**E-Resources**	

Detailed Lesson Plan

Week	Date	Topic to be Covered	Instructional Technique	Assessment Method
1	11.10.21	Explain Course Outcomes	1-(PPT/Projector)	1
	12.10.21	Algorithm , Characteristics of Good Algorithm	2-(PPT/Projector)	1,2,4
	13.10.21	Flowchart, Types of Flowcharts	2-(PPT/Projector)	1,2,3
2	18.10.21	Rules for drawing Flowcharts	2-(PPT/Projector)	1,2,3
	19.10.21	Pseudo Codes , Decision Tables	2-(PPT/Projector	1,2,4
	20.10.21	Documentation, Debugging	2-(PPT/Projector)	1,2,3
3	25.10.21	Computer Languages, Analogy with Natural Languages	2-(PPT/Projector)	1,2,3
	26.10.21	History of Programming Languages, Machine Language, Assembly Language, High Level Language	2-(PPT/Projector)	1,2,3
	27.10.21	Translator, Compiler and Interpreter	2-(PPT/Projector)	1,2,4
4	1.11.21	**HOLIDAY**	----------	----------
	2.11.21	Overview of C: History & Importance of C	2-(PPT/Projector)	1,2,3,4
	3.11.21	Structure of a C Program	2-(PPT/Projector)	1,2,3,4
5	8.11.21	Elements of C: C Character Set, Identifiers and Keywords	2-(PPT/Projector)	1,2,3
	9.11.21	Data Types, Constants and Variables	2-(PPT/Projector)	1,2,3,4
	10.11.21	Operators and Types of Operators	2-(PPT/Projector)	1,2,3,4
6	15.11.21	Evaluation of Arithmetic Expression, Type Casting and Conversion, Operator Hierarchy & Associativity	1- Chalk & Talk	1,2,3
	16.11.21	Decision Making & Branching: Decision Making with IF Statement, IF-ELSE Statement,	1, 2-(PPT/Projector)	1,2,3,4
	17.11.21	Nested IF Statement	1, 2-(PPT/Projector)	1,2,3,4
7	22.11.21	**Assignment 1**	----------	1
	23.11.21	ELSE-IF Ladder	2-(PPT/Projector)	1,2,3,4
	24.11.21	Switch Statement, go to Statement	2-(PPT/Projector)	1,2,3,4

Week	Date	Topic to be Covered	Instructional Technique	Assessment Method
8	29.11.21	**DIWALI BREAK**	----------	----------
	30.11.21			
	1.12.21			
	6.12.21	**Sessional**	----------	5
	7.12.21	For loop	1,2-(PPT/Projector)	1,2,3,4
	8.12.21	while loop	1,2-(PPT/Projector)	1,2,3,4
10	13.12.21	do-while loop	1,2-(PPT/Projector)	1,2,3,4
	14.12.21	break Statement	1,2-(PPT/Projector)	1,2,3,4
	15.12.21	continue Statement	1,2-(PPT/Projector)	1,2,3,4
11	20.12.21	Functions: Definition, Prototype	1,2-(PPT/Projector)	1,2,3,4
	21.12.21	Functions: Passing Parameters	1,2-(PPT/Projector)	1,2,3,4
	22.12.21	Recursion	1,2-(PPT/Projector)	1,2,3,4
12	27.12.21	Arrays: Definition, Initialization,	1,2-(PPT/Projector)	1,2,3,4
	28.12.21	Processing an Array.	1,2-(PPT/Projector)	1,2,3,4
	29.12.21	Multidimensional Array	1,2-(PPT/Projector)	1,2,3,4
13	3.1.22	Storage Classes in C: Auto,	1,2-(PPT/Projector)	
	4.1.22	Register and Static Storage Class, Scope, Storage & Lifetime	1,2-(PPT/Projector	1,2,3,4
	5.1.22	Extern Storage Class, Scope, Storage & Lifetime	1,2-(PPT/Projector	1,2,3,4
14	10.1.22	**Assignment 2**	6	----------
	11.1.22	Pointers: Introduction, Pointer Variables,	2-(PPT/Projector	1,2,3,4
	12.1.22	Pointer Operators, Pointer Assignment, Pointer Conversion	2-(PPT/Projector	1,2,3,4
15	17.1.22	Pointer Arithmetic, Pointer Comparison	2-(PPT/Projector	1,2,3,4
	18.1.22	Pointers and Arrays	2-(PPT/Projector	1,2,3,4
	19.1.22	Pointers and Functions	2-(PPT/Projector	1,2,3,4
16	24.1.22	Structures in C	2-(PPT/Projector	1,2,3,4
	25.1.22	Structures and Functions	2-(PPT/Projector	1,2,3,4
	26.1.22	Union and Structure	2-(PPT/Projector	1,2,3,4