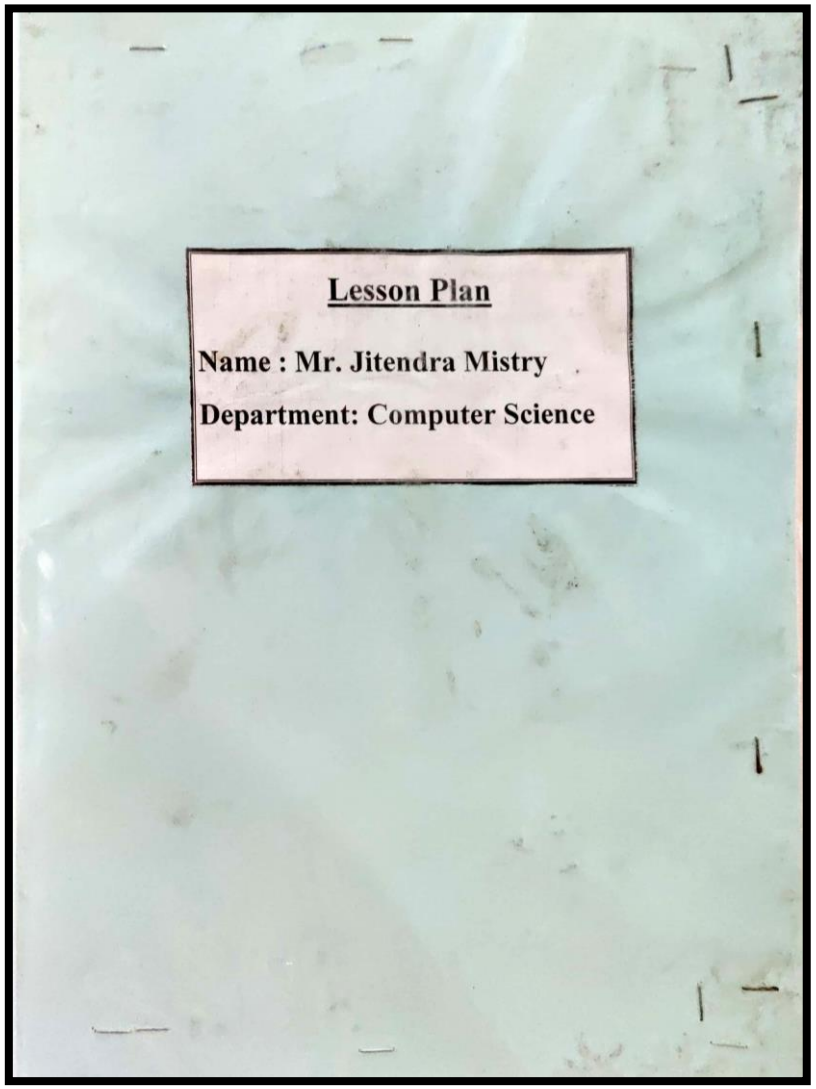
SOPHIA GIRLS' COLLEGE(AUTONOMOUS), AJMER



SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
V.C.A. (SEMESTER - III) 2019-20

VCA – 301 Programming in C++

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30 (20 Ext;10 Int)

COURSE PLAN

SEM - III Month	UNIT / TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	• Introduction to different types of programming styles • Introduction to Algorithm, Flowcharts and Pseudocode • Introduction to C++ identifiers and Keywords, Constants, Variables, and Operators.	Understand the concepts of Programming Logics & Techniques its source and usage & characteristics of 'C++' Language	PPT, Match the following, Demonstration	Identify terminology associated with the concepts, techniques, and processes used throughout the 'C++' Programming Language	*Knowledge Based* Define Compiler & Interpreter Give difference between flowchart and algorithm *Understanding Based* Make a flowchart to find the greatest of the three numbers WAP to print the table of a given number upto a given number	Knowledge--45 Understanding -15 Higher Order-15
AUGUST	• Introduction to data types , operators, type conversion. • Input Output Instructions (cout, cin, getch). • Arithmetic Instructions: Hierarchy. • Priority and Associativity of Operators.	List the ways of Printing on the screen & Taking input from the user, of 'C++' Language	PPT, Practical Implementation	Get familiar with basics input output & Operators of 'C++' Language.		

SEPTEMBER	Control Instructions: • Decision Control (Statements and blocks- if, if-else, conditional operator) nesting. • Loop Control (Statements and blocks- while, for, do-while, Nesting Loops), • Case Control- (Statements and blocks- switch-case,), break, continue, goto statements Functions: • Functions (Structure and Block):- Declaration, Calling (Call by value, Call by reference), • Definition of functions, Recursion.	Lists utility and implementation of Control Instructions	PPT, Practical Implementation	Able to create / write various control instructions	*Knowledge Based* Define functions in 'C++'. What is recursion? *Understanding Based* Give differences between call by value & call by reference.	
OCTOBER	Storage Class: • (auto, static, register, extern), Scope rules (Local, Global). Pointers: • Pointers and addresses, • Pointers as Function arguments, • Pointers and Arrays, Address Arithmetic. • String Handling and string functions (strlen, strcat, strcmp, strcmpi, strrev, strcpy).	Utility of Storage Classes & Pointers	PPT , Quiz	Understand storage classes and pointers with their usage		

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SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
V.C.A. (SEMESTER - III) 2019-20

VCA – 302 Data Communication and Networking

Max. Marks :75 (50Ext; 25 Int)

Min. Marks: 30 (20 Ext;10 Int)

COURSE PLAN

SEM - III Month	UNIT / TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	• Introduction to digital communication. • Introduction to different types of networks :LAN, WAN MAN • Intro to Server, Client, their role in networking. • Intro to Topology, its types, advantages and disadvantages of different types of Topologies.	Understanding the history, importance and evolution of networking. Understanding the types of Networks, Their needs, uses and importance. Understanding the different topologies	PPT, Match the following, Demonstration	Identify terminology associated with the concepts, techniques, and processes used in Networking.	*Knowledge Based* Define Network. Give difference between LAN and WAN *Understanding Based* How is star topology better than Bus Topology? Compare the different types of Topologies and state their advantages and disadvantages.	Knowledge--45 Understanding -15 Higher Order-15
AUGUST	• Introduction to signals. Analog and Digital. • Introduction to different terminologies related to signals : Amplitude, Frequency, Phase, Bit Rate, Baud Rate • Introduction to Transmission Media ; Guided and Unguided Media	Understanding the types of signals and their usage. Importance of different characteristics of Signals. Importance of the transmission Media.	PPT, Practical Implementation	Getting familiar with the different types of signals, their terminologies, and transmission media.		

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EPTEMBER	Multiplexing • Introduction to different networking terminologies like Noise, distortion, Attenuation, Delay etc. • Types, need and importance of Multiplexing.	Lists types and uses of different types of Multiplexing.	PPT, Practical Implementation	Should understand the need of different types of Multiplexing.	*Knowledge Based* Explain FM. What is Multiplexing? *Understanding Based* Give differences between FM and AM. Difference between router and switch	
OCTOBER	• OSI MODEL • TCP/IP • FTP • TELNET • Networking Devices	Understanding the concept of OSI model, protocols and different networking devices	PPT , Quiz, You tube videos	Understand the different networking devicces		

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SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
V.C.A. (SEMESTER III) 2019-20

VCA– 401 Programming in C++

Max. Marks :75 (50Ext; 25 Int)

Min. Marks: 30 (20 Ext;10 Int)

COURSE PLAN

SEM - IV Month	UNIT / TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	• Classes • Objects • Features of OOPS • Advantages and disadvantages • Characteristics of OOPS languages • Terminology of OOPS	Classes, objects, polymorphism, data abstraction, inheritance, over loading	PPT	Understanding the basic concept of OOPS languages and its different terminologies and their meaning	*Knowledge Based* What are classes? What are objects	Knowledge--45 Understanding-15 Higher Order-15
JANURARY	• How to make class? • How to create objects? • Member functions • Data members • Array of objects • Constructor • Destructor • Function overloading	Classes, objects, data members, creating constructors and destructors, implementing function overloading	PPT , Quiz	Understand the basic concept of OOPS programming language, its structure. Implementing various oops technologies in a program.	*Understanding Based* Give difference between structure and class.	

		Utility of Compression and various standards, privacy aspects of project	PPT	Study laws of multimedia and importance of compression technique	*Higher Order Thinking Skills Based* WAP with a class called student having a friend function fees which would print the fess of a student. Also inherit a class called defaulter from the above class.	
FEBURARY	• Static class member • Dynamic memory allocation • Friend functions	Understanding the concept of static class members. Using dynamic memory allocation.	PPT, Practical Implementation	Using friend functions in c++.		
MARCH	• Inheritance • Types of Inheritance • Advantages and disadvantages of inheritance • Function overriding • Function over loading	Understanding the basic concept of Inheritance, its need and importance	PPT, Practical Implementation	Understand the difference between function over loading and function over riding.		

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SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
V.C.A (SEMESTER IV) 2019-20

VCA – 402 Data Structure and Algorithms

Max. Marks :75 (50Ext: 25 Int)

Min. Marks: 30(20 Ext;10 Int)

COURSE PLAN

SEM IV Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	• Introduction to algorithms • Introduction to data types • Arrays, two and three dimensional and their storage policy • Characteristics of an algorithm	• Understanding the need and importance of an algorithm. • Understand the different data types and their importance. • Understanding the concept of arrays	PPT, Practical Implementation, Practice questions, worksheet	Write meaningful algorithms with best characteristics. Understanding the storage mechanism of arrays.	*Knowledge Based* What is algorithm? What are primitive data types and composite data types? *Understanding Based* Explain a good algorithm. WAP to implement Binary Search algorithm in C++.	Knowledge--45 Understanding-15 Higher Order-15
JANUARY	• Sorting and Searching. • Binary and Linear Search algorithm • Sorting – External and Internal Sorting algorithms. • Merge Sort, Selection Sort	• Understanding the need and importance of searching and sorting. • Understating different algorithms used for searching and sorting	PPT, Practical Implementation MCQ's	Able to code the searching and sorting algorithms. Implement different searching and sorting techniques		

FEBRUARY	• Linked List : Introduction • Representation of linked list in memory • Traversing a linked list • Searching a linked list • Sorting a linked list • Types of linked list	Understanding the need and importance of a linked list. Understanding different types of linked list. Using programming techniques to search, traverse and sort a linked ist	PPT, Quiz	Understand the linked list data structure and implement it through coding.	*Higher Order Thinking Skills Based* Write a program to implement a stack in c++ using class. What is the difference between Stack and Queue working methodology?	
MARCH	• Introduction to various data structures like Stacks , Queues, Graph, Tree • Traversing a tree – Pre order, post order, in order • Breadth First Search • Depth First Search	Understanding data structures like stacks, queue and tree. Understanding their working mechanism. Understanding the traversing and searching mechanism in these data structures.	PPT, Practical, Live Examples	Understand the basic concept of data structure. Understand the need, importance and meaning of various data structures. Understanding the different traversing mechanisms used in different data structures.		

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SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)
M.Sc [C.S] (SEMESTER II) 2019-20

MSC-202 – Computer Graphics

Max. Marks :100 (70Ext: 30 Int)

Min. Marks: 40(28 Ext;12 Int)

COURSE PLAN

SEM IV Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	• Introduction to different types of graphics. • Discussion on different hardware devices like monitors, keyboards, mouse, printers. • Algorithms : Line Drawing algorithms (DDA, Bresenhams)	• Understanding the types of graphics, their importance and their role in computers. • Understanding the basic maths behind line drawing algorithms and their implementation	PPT, Practical Implementation, Practice questions, worksheet	Understand the difference between active and passive graphics. Understand the working of different hardware devices	*Knowledge Based* What are passive graphics? *Understanding Based* Explain the working of a DVST monitor. Explain difference	Knowledge--60 Understanding-30 Higher Order-30

JANUARY	• Circle Drawing algorithms • Ellipse Drawing Algorithm • Mid point Circle Drawing algorithm • Mid point ellipse drawing algorithm • Area Fill algorithms	• Understanding the different algorithms , their working methodology and basic maths behind it. • Understanding different area filling algorithms	PPT, Practical Implementation MCQ's	Able to code different algorithms in C as well as C++	between LCD and LED monitors. WAP to Implement Bresenham's Line Drawing Algorithm	
FEBRUARY	• 2 D Transformation: Rotation, Scaling, Skewing, Translation and Reflection • Clipping	Understand the basic concept of 2D Transformation along with the mathematical part. Understanding clipping operation using various algorithms and their working.	PPT, Quiz	Understand the various clipping algorithms with their basic working and the mathematical concept behind them.	*Higher Order Thinking Skills Based* Difference between bitmap and vector graphics. Explain the working of Cohen Sutherland line clipping algorithm.	
MARCH	• 3D Display methods, Visible line and visible surface identification. • Curves • 3 D Transformation	Understanding the basic 3d parallel and projection viewing concepts and their differences. Understanding B Spline Curves, their role in graphics and their working. Understanding 3D Transformation with their	PPT, Practical, Live Examples	Understanding 3D Transformations like rotation, scaling, translation, shearing and reflection. Understand how curves are generated in		

		mathematical part.		computer programs and the basic maths behind their generation.		

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