



SOPHIA GIRLS' COLLEGE (AUTONOMOUS), AJMER

**Sophia Girls' College (Autonomous),
Ajmer**



Department of Computer Science

Course Plan

Ms. Kiran Bhagnani



SESSION 2022-23
(ODD SEMESTER)

S.No.	CLASS	SEMESTER	PAPER
1.	BCA	I	Multimedia Basics
2.	BCA/IMSC	III	Discrete Mathematics
3.	VCA	V	Website Development
4.	IMSC	VII	Artificial Intelligence



SOPHIA GIRL'S COLLEGE (AUTONOMOUS), AJMER
B.C.A. (SEMESTER I) 2022-23

MULTIMEDIA BASICS

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

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

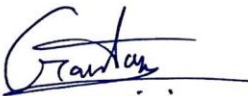
Credit: 03

COURSE PLAN

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
AUGUST	UNIT I Introduction to Multimedia Technology- Applications of Multimedia, advantages and disadvantages of Multimedia, media elements	Different formats of data representation and its requirement	PPT, E-content	Identify terminology associated with the concepts, techniques, and processes used throughout the multimedia environment.	<u>Knowledge Based</u> <ul style="list-style-type: none">• Define multimedia• List application areas of MM	Knowledge--60 Understanding-30 Higher Order-10
	User Interface and its types, importance and its features, MM hardware and software requirements	Requirements of different hardware and applications needed to deal with multimedia data	Demonstration, PPT, E-content		<u>Understanding Based</u> Which interface is best suitable to take input from the user and why? Give comparison between vector and Bitmap Images	
SEPTEMBER	Images: raster and vector images UNIT II Image compression: Lossy and Lossless Compression, advantages and disadvantages of image compression, audio synthesis, speech recognition and Speech Synthesis, Jpeg image compression,	Comparison of different image types and compression techniques	E-content , PPT and lecture method	Compare different image types and compression		



OCTOBER	mpeg video compression. Developing Applications using multimedia, methodology and design, Various multimedia laws: Patent law, Trademark Law, Trade secret Law, and Copyright Law. UNIT III Introduction to Flash: Tools of Flash (Pen, Pencil, Paint Bucket Tool, Eye Dropper, Text, 3D rotation etc),	How to design a Multimedia application, Business and Ethical laws in society Creating Animation using vector images	PPT, Quiz, E-content	Study laws of multimedia and design environment	<u>Higher Order Thinking Skills Based</u> Can integration of different media elements can be accomplished in any computer? Justify
NOVEMBER	Drawing object in flash (line, curve, oval, Rectangle, Polystar tool), stroke and fill, Layers and its types in flash, Key frames, symbols, Object based animation, Motion tween, classic tween and shape tween, adding sound.	Importance of computers in developing animation and how to select particular tween from various options Creating professional animations	PPT, Practical, Videos, E-content PPT, Practical, Live Examples	Design basic animations and gif images using flash	


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B.C.A/IMSC (SEMESTER III) 2022-23
BCA/IMSC – 301 Discrete Mathematics

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

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

Credit: 03

COURSE PLAN

SEM III Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	Unit I Sets: Elements of a set, methods of describing a set, types of sets, Operations on sets-- union, intersection and difference of sets, Associative Laws, Distributive laws DeMorgan's laws(proofs) Venn Diagrams, Cartesian product of two sets	Membership of set and how to examine their relationships	PPT, Practical Implementation, Hands- on Exercise	Apply set operations to solve applied problems	<u>Knowledge Based</u> What is set? Define reflexive relation. <u>Understanding Based</u>	Knowledge-- 50 Understanding-- 35 Higher Order-- 15
AUGUST	Basic terminology of Graph Theory –Vertices, Edges, Loop, Path, degree, Types- Undirected- Directed, weighted-Un-weighted, Simple-Multigraph, Labelled, Null, Di-graph, Subgraph, Connected-disconnected, Cyclic-Acyclic, Dijkstra's shortest path algorithm, Minimum Cost spanning Tree Algorithm (Prim's and Kruskal's). Unit II Relation: Basic definition of relation	Understanding graph components and importance Finding Minimum Cost path from several possible plan	PPT, Practical Implementation, Hands- on Exercise	Able to recognize the membership of relationship set	Prove DeMorgans law of set theory. Give the utility of quantifiers. <u>Higher Order Thinking Skills Based</u>	

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SEPTEMBER	Types of relations (reflexive, irreflexive, symmetric, A-symmetric, transitive, anti symmetric, equivalence), Binary relations, domain, range, inverse and composite.	Need of Relation and how to write the elements in relation from given equation			Is Adjacency matrix of all graphs symmetric? Justify by example In a class, 60% students like math whereas 50% like science. What per cent of students like both math and science?
	Language of Logic: Proposition, Compound Proposition, Conjunction, Disjunction, Implication, Converse, Inverse & Contra positive, Biconditional Statements, tautology, Contradiction & Contingency,	Understanding algebra of logic, validity of compound statements			
OCTOBER	Logical Equivalences, Universal and existential quantifiers. UNIT III Matrices: Definition of a matrix, types of matrices, Basic operations(Addition, subtraction and Multiplication), Transpose		PPT, Practical Implementation, Hands- on Exercise		
NOVEMBER	Determinant of a square Matrix, Minor and Co-factors, Adjoint of a square Matrix, Inverse of a matrix, Solution to System of Linear equations- Matrix Inverse method and Cramer's method.	Representing data in two dimensions	PPT, Practical Implementation, Hands- on Exercise	Understand different graphs and matrix operations.	

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V.C.A III (SEMESTER V) 2022-23
VCA – 501 Website Development

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

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


Credit: 03

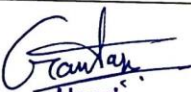
COURSE PLAN


SEM V Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	UNIT I Introduction of HTML: introduction, markup language, editing common tags, headers, text styles, working with Links: creating a hyperlink, selecting hyperlink color, linking different sections of the webpage, formatting text, horizontal rules and more line breaks, unordered lists, nested and ordered lists. Working with images: inserting an image, adding border to image, aligning an image, using image as hyperlink. Working with tables: creating table, specifying caption to a table, setting width of table and table columns, setting cell spacing and padding ,spanning rows and columns, image maps.	Basic Formatting of WebPages Properties of Images and Table	PPT, Programs, E-Content	Get familiar with basics of the Internet Contrast between static and dynamic WebPages	<u>Knowledge Based</u> What is static webpage? Give the use of align attribute of tags. What is hyperlink? <u>Understanding Based</u> What is nested list? Explain by an example. Write an HTML code to divide the webpage into four vertical sections.	Knowledge—40 Understanding-40 Higher Order-20
AUGUST	Unit II Basic HTML forms, working with frames: creating vertical and	Understanding different sections of Webpage and	PPT, Programs, Blended learning	Acquire knowledge and skills for creation of web site considering HTML		

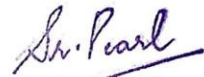
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	horizontal frames, applying hyperlink targets to a frame. Cascading style sheets: inline, internal and external style sheets. Java script – introduction to scripting, JavaScript Keywords, variables, expression, data type, var.	how CSS can save time and effort in website development		and client side programming using JavaScript	<p><u>Higher Order Thinking Skills Based</u></p> <p>Write a code to create a function to take input from user and find its factorial.</p> <p>Write a code to show use of different math methods.</p>
SEPTEMBER-	Unit III Operators : Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment/ Decrement Operator, Conditional operator, Comma operator, % (Modulus), ++ (Increment), -- (Decrement), - (Unary Negation).	How JavaScript can be incorporated in HTML document. How to take and process input form then user	PPT, Practical Implementation	Design website using both the scripting languages	
OCTOBER	Control Structure: if-else, switch, Break, loop: while, do-while, for, for-in.				
NOVEMBER	Function: create, Core JavaScript (Properties and Methods of String, Math and Date Object Java script arrays: introduction, array-declaring and allocating arrays.	Use of functions and various objects variable in JavaScript Comparison of code without array and with arrays	PPT, Practical Implementation	Implement the functions of Date, Math and String objects	


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SOPHIA GIRL'S COLLEGE (AUTONOMOUS), AJMER
IMSC SEMESTER VII 2022-23

IMSC- 701 Artificial Intelligence

MAX MARKS: 100(70EXT; 30 INT)

MIN. MARKS: 40(28 EXT;12 INT)

Credit: 03

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JULY	Unit I Definition of AI, Applications of AI, knowledge-based systems, representation of knowledge, organization and acquisition of knowledge.	Human Intelligence vs artificial systems, various inputs and outputs	PPT, Lecture , Diagrams, e- content	Understand basic principles and application of AI	<u>Knowledge Based</u> Define Artificial Intelligence What is logic?	Knowledge--25 Understanding-45 Higher Order-30
AUGUST	State space, Production system and its components, problem characteristics, production system characteristic, Problems (8-Puzzle problem, Tower of Hanoi, Cannibals and Missionaries and Travelling Salesman Problem) Search problems: DFS, BFS, Heuristics Search (Generate and test, Greedy or Best First search).	Search Problems and its complexity		Solve various problems by applying a suitable search method	<u>Understanding Based</u> What is inferencing in artificial systems? Explain by an example. Give the application areas of expert systems.	
SEPTEMBER	Unit II Syntax, semantics of propositional logic, syntax and semantics of FOPL,	Logical reasoning and its storage	Hands on Exercise and Practical	Represent knowledge in various ways	<u>Higher Order</u>	

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	conversion to clausal form. Inference rule, resolution principles. Non-deductive inference methods, truth maintenance system, fuzzy logic,		Implementation,		<u>Thinking Skills Based</u>
OCTOBER	Bayesian probabilistic inference, associative Unit III Concept of learning: Inductive and deductive, rote learning, Components of Learning Model, Performance Measures, Types of Learning (Supervised, Unsupervised, Active & Reinforcement). networks, frame networks.	Role of knowledge in building artificial systems	Hands on Exercise and Practical Implementation, e-content		Briefly give comparison between informed and uninformed search. Explain forward and backward chaining in inferencing.
NOVEMBER	Concept of expert system, need for an expert system, Characteristics & features of an expert system, Components of an expert system, Stages in the development of an expert system, Application areas of Expert System	Concept of Automated systems and how systems can learn Rule Based systems, its creation and usage	Hands on Exercise and Practical Implementation, blended learning	Understand key concept of learning	

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SESSION 2022-23
(EVEN SEMESTER)

S.No.	Class	Semester	Paper
1.	BCA/ IMSC.	IV	ADBMS
2.	VCA	VI	Multimedia Technology
3.	M.Sc. Prev.	II	Web Development



SOPHIA GIRL'S COLLEGE(AUTONOMOUS), AJMER
B.C.A II (SEMESTER IV) 2022-23
BCA – 402 Advance Database Management Systems

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

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


Credit: 03

COURSE PLAN

SEM IV Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	UNIT I Transaction Processing: ACID Properties, Transaction State,	Importance of Database Properties and how multiple transactions can work together	PPT, Practice problems, E-content	Analyse the importance of Serializability	<u>Knowledge Based</u> What is query?	Knowledge--40 Understanding-40 Higher Order-20
JANUARY	Concurrent Executions, Need of Serializability, Conflict vs. View Serializability, Testing for Serializability. Concurrency Control: Implementation of Concurrency: Lock-based protocols, Timestamp-based protocols, Deadlock handling. Database Failure and Recovery: Database Failures, Recovery Schemes: Shadow Paging and Log-based Recovery.			Managing Deadlocks	Define interoperation in databases. BLOB and CLOB data types. <u>Understanding Based</u>	
FEBRUARY	Query optimization & processing: Introduction, Algorithm for external sorting, select & join operation, project & set operations. UNIT II Parallel Databases : I/O Parallelism, Interquery Parallelism, Intraquery			Compare and Contrast between different types of databases. Optimize the	Explain the two phase commit protocol of databases. Give a brief explanation of temporal databases	

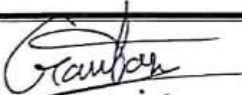
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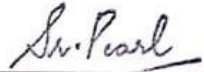
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	Parallelism.	Importance of executing operations in parallel		operations		
	Distributed Databases: Replication and Fragmentation, Distributed Transactions, Commit protocol, Concurrency Control in Distributed Databases. UNIT III Introduction to PL/SQL and its advantages over SQL, PL/SQL block structure, variables and constants, attributes, character set, data types Control structures, conditional control. Sequential control.	How data can be processed from various sites in distributed databases. Problems that do exist in distributed architecture	PPT, Practical Implementation	Handle the distributed transactions	<u>Higher Order Thinking Skills Based</u> Compare between parallel and distributed databases. Write a PL/SQL code for trigger creation	
	APRIL Introduction to Cursor (Implicit & Explicit), Error handling in PL/SQL, creating function & procedure, package functions, package procedures, Oracle transactions Database Triggers: Introduction, Use & type of database Triggers, Triggers Vs. Declarative Integrity Constraints, BEFORE Vs. AFTER Trigger Combinations, Creating a Trigger, Dropping a Trigger.	Importance of PL/SQL and data types available in PL/SQL in respect to SQL Different ways of handling error in PL/SQL Importance and various combinations of triggers in databases	PPT, Practical Implementation	Handle the events occurring on database and explicit error handling		

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V.C.A III (SEMESTER VI) 2022-23
VCA – 601 Multimedia Technology

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

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




Credit: 03

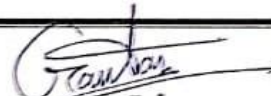
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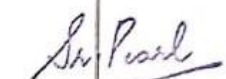
SEM VI Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
DECEMBER	Unit – I Introduction to Multimedia , Advantages and Disadvantages of Multimedia Introduction to Multimedia , media elements	Effective Communication, its source and usage	PPT, E-content	Identify terminology associated with the concepts, techniques, and processes used throughout the multimedia environment	<u>Knowledge Based</u> Define multimedia Computer Write short note on video	Knowledge—40 Understanding- 40
JANURARY	Application areas of Multimedia, Advantages and Disadvantages of Multimedia, System components, user interface and its types, importance and Features of user interface, MM hardware & software requirements	Integrating various media elements for a project.			<u>Understanding Based</u> Explain how user interface is important for any multimedia interface. Give differences between bitmap and vector images.	Higher Order-20

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 FEBURARY	Unit – II Images: Raster and Vector image Compression: Lossy and Lossless Compression, advantages and disadvantages of compression, jpeg image compression Various multimedia laws: Patent law, Trademark Law, Trade secret Law, Copyright Law	 Utility of Compression and various standards, privacy aspects of project	PPT , Quiz	 Understand the multimedia system	<u>Higher Order Thinking Skills Based</u> Write down the steps to create butterfly and apply guide layer. Can integration of different media elements can be accomplished in any computer? Justify
	MARCH Introduction to Flash: Uses of flash, hardware requirements of flash, Tool Box and its components (Line tool, Pen, Pencil, Paint Bucket Tool, Ink bottle tool, Eye Dropper), Color effects (solid, linear gradients & Radial gradients) Text tool.	Utility of flash file, how to render simple components on stage.	PPT, Blended Learning	Study laws of multimedia and importance of compression technique	
APRIL	UNIT III Flash: 3D rotation, Eraser tool, concept of frames, significance of frames, key frame, Drawing object in flash (line, curve, oval, Rectangle , Polystar tool) Layers and its types in flash. Insert and rename layers, Envelope Object based animation (frame by frame animation, motion tween, classic tween and shape tween, animating text), adding, sound	Understanding various components of Flash Utility of layers Comparative analysis of tweens	PPT, Practical Implementation	Understand key concepts of Flash designing tool Design basic animation and gif images for publishing	


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SOPHIA GIRL'S COLLEGE (AUTONOMOUS), AMER
M.SC Computer Science (PREV) 2022-23
SEMESTER II (M.Sc. C. Sc. Prev.)
MCS -204: Web Development

MAX MARKS: 100(70EXT; 30 INT)

MIN. MARKS: 40(28 EXT;12 INT)

Credit: 03

COURSE PLAN

SEM/ Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
JANUARY	Unit – I PHP – Introduction, Common Uses of PHP, Characteristics of PHP, PHP – Environment Setup (XAMPP), Installation on Windows,	Server side Programming and dynamic WebPages	PPT, Lecture , e-content	To impart knowledge server side programming using PHP	<u>Knowledge Based</u> What is dynamic webpage? What is precedence of operator?	Knowledge—25 Understanding- 45
FEBURARY	PHP – Syntax, Running PHP Script from Command Prompt PHP – Variable, Local Variables, Global Variables, Static Variables, Constants, Operator Types, Precedence of Operators Unit – II PHP: Decision Making: If...Else Statement, ElseIf Statement, Switch Statement, Loop Types:, while , do...while, for, for each, break, continue	Understanding different sections of Webpage and website development	Hands on Exercise and Practical Implementation, blended learning	To Develop the decision making statement logic under different concepts using XAMP server	<u>Understanding Based</u> What is nested list? Explain by an example. Write an HTML code to divide the webpage into four vertical sections.	Higher Order-30

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MARCH	Arrays : Numeric Array, Associative Arrays, Multidimensional Arrays, Strings function, Web Concepts, GET and POST, File Inclusion, File & I/O	How JavaScript can be incorporated in HTML document. How to take and process input form then user	Hands on Exercise and Practical Implementation, blended learning		<u>Higher Order Thinking Skills Based</u> Write a code to create a function to take input from user and find its factorial.	
APRIL	Unit – III PHP : Functions, Cookies, Sessions, Sending, File Uploading, Error and Exception Handling, PHP	Use of functions and various objects variable in JavaScript	Hands on Exercise and Practical Implementation, blended learning	To gain ability to develop web applications database connectivity using MYSQL Database	Write a code to show use of different math methods.	
MAY	PHP and MySQL: Connecting to MySQL Database, Create MySQL Database Using PHP, Insert MySQLDatabase Using PHP, Delete Data to MySQL Database, Retrieving Data from MySQL Database	Comparison of code without array and with arrays	Hands on Exercise and Practical Implementation, blended learning			

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